WPP 001/4 IHC 5,8 a 1 2. Edition

VA 6/100 H 1500 CR 19-3 CR 19-4

8.73 supersedes IHC company D 358

engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches**

Test Intructions and Test Equipment **VDT-WPP 161/4 B**

Pre-setting see reverse side

0,4 _{mm} $\pm 0,04$ Pre-stroke setting Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	5,0-5,8	mm		
1.2 Supply pump pressure	1000	5,8-6,3	kp/cm²		
1.3 Full-load delivery without	1200	73,5-74,5	cm ³ /1000 strokes		2,5
charge-air pressure Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	250	22,0-28,0	cm ³ /1000 strokes	1	3,0
1.5 Start	100	mind.84,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1620	16,0-24,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	s in brackets		
2.1 Timing device	rev/min mm			1000) 5,9-6,9(5,6	1200 1400 -7,2) 6,9-7,6(6,6-7,9)
22 Supply pump	rev/min kp/cm²	200 2,0-2,5(1,8-		2000 (5,6-6,5)	2500 7,3-7,8(7,1-8,0)
Overflow delivery	rev/min cm ³ /10 s	500 55-100(40-11			1500 35-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1660-1730 (1640-1750) 1620 1510-1530 1400 1200 500	Beginn 73,5-76,5	(15,0-25,0) (72,5-77,5) (73,0-75,0) (61,0-67,0)	
	Stop	1500	0		
Idle stop	Full	360-420 (340-440)	0	(21,0-29,0)	
End stop	Start	100 220-320	mind. 84,0		

Testoil-ISO 4113

BOSCH

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 55 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV= 2,0 mm Dimension V≈ 24,6 mm

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WPP 001/4 HAN 3,1 c 1 2. Edition

En

VA 4/100 H 1150 CR 55

2. Test Specifications

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

Checking values in brackets

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting

 $0,1 \text{ mm} \pm 0,02 (\pm 0,04)$

supersedes 5,75
company
engine.
Hanomag
D 142 K

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

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1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	1,7-2,5	mm		
1.2 Supply pump pressure	900	4,8-5,3	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	55,0-56,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	300	7,0-13,0	cm ³ /1000 strokes		
1.5 Start	100	mind.75,0	cm ³ /1000 strokes		3,0
1.6 Full-load speed regulation	1200	21,0-29,0	cm ³ /1000 strokes		

2.1 Timing device	rev/min	600-730(570-	760)	900	950-1050
	mm	Start		(1,4-2,8)	2,5-3,2(2,2-3,5)
2.2 Supply pump	rev/min	200		900	1150
	kp/cm²	1,4-1,9(1,2-	2,1)	(4,6-5,5)	5,6-6,1(5,4-6,3)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100(40-11	0)		55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1200-1290 (1180-1310) 1200 1130 800 500		(20,0-30,5) (43,5-48,5) (54,5-56,5) (43,0-48,0)	
	Stop	1150	0		
ldle stop	Full	330-410 (310-430) 300	0	(6,0-14,0)	
	Start	100	mind.75,0		
End stop	<u> </u>	150-250			

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 4,5 mm Dimension V = 24,6 mm

WPP 001/4 H A N 3,1 d 2 2. Edition

VA 4/100 H 1200 CR 58 0 460 304 163

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

5.75 supersedes Hanomag company D 142 E 1/7

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting

 $0,1_{mm} \pm 0.02 (\pm 0.04)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

engine

			Pr	e-setting see revers	se side
1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ²
1.1 Timing device travel	800	1,3-2,1	mm .		
1.2 Supply pump pressure	800	4,2-4,7	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	52,0-53,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	~-		cm ³ /1000 strokes		
1.4 Idle speed regulation	300	20,0-26,0	cm ³ /1000 strokes		.3,0
1.5 Start	100	mind.80,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1250	33,0-41,0	cm ³ /1000 strokes		

2.1 Timing device	rev/min	580-700(550-730)	800	830-960
	mm	Start	(1,0-2,4)	2,5-3,2(2,2-3,5)
2.2 Supply pump	rev/min kp/cm²	200 1,1-1,6(0,3-1,8)	800 (4,0-4,9)	1200 5,9-6,4(5,7-6,6)
Overflow delivery	rev/min cm ³ /10 s	500 55-100(40-110)		1200 55-100(40-110)

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1290-1340 (1270-1360) 1250 1180 800 500	0 50,5-53,5 49,5-52,5	(32,0-42,0) (49,5-54,5) (51,5-53,5) (48,5-53,5)	
	Stop	1200	0		
Idle stop	Full	400-450 (380-470) 300	0	(19,0-27,0)	
End stop	Start	100 150-250	mind. 80,0)	

Angle to the stop-plate	Pre-setting dimensions
Pump $ \alpha = 25 \pm 4^{\circ} $ $ \beta = 40 \pm 8^{\circ} $ $ \gamma = 30 - 8^{\circ} $ $ \delta = 60 + 8^{\circ} $	Pump Dimension IV 3,0 mm Dimension V 24,5 mm

A6

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WPP 001/4 SAV 5,2 b 2 1. Edition

En

VA 6/110 H 1450 CR 169-2 0 460 316 021

> Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

supersedes Say

company Saviem 798-40

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting

 $0,4 \text{ mm} \pm 0,02 (\pm 0,04)$

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,9-5,9 _{mm}	0	
1.2 Supply pump pressure	1000	5,5-6,0 kp/cm²	0	
1.3 Full-load delivery without	500	60,0-63,0 cm ³ /1000 strokes	0	2,5
charge-air pressure Full-load delivery with charge-air	900	80,0-81,0 cm ³ /1000 strokes	0,48	
pressure 1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes	0	3,0
1.5 Start	100	mind.100,0 _{cm} 3/1000 strokes	0	
1.6 Full-load speed regulation	1550	36,0-44,0 cm ³ /1000 strokes	0,68	

2.1 Timing device	rev/min	450-550(420-580)	650	1000	1050-1200
	mm	Start 1	,2-2,1(0,8	-2,4)(4,6-6,2	2) 6,1-6,8(5,8-7,1)
2 2 Supply pump	rev/min	200		1000	1450
	kp/cm²	1,4-1,9(1,2-2,1)		(5,3-6,2)	7,1-7,6(6,9-7,8)
Overflow delivery	rev/min	500			1450
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

Speed control lever	Dolivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm²
End stop	Full	1650-1710 (1630-1730)	0	0,68
		1550 1480-1520	(35,0-45,0 Start	0,68
		1450	76,5-79,5 (75,5-80,5 (79,5-81,5	0,48
		750 500	(73,0-75,0 60,0-63,0 (59,0-64,0	
	Stop		0	
Idle stop	Fult	370-420 (350-440)	0	
		300	(11,0-19,0)
End stop	Start	100 110-220	mind. 100,0	·

Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 50 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV= 5,0 mm Dimension V=24,6 mm		

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WPP 001/4 SAV 5,2 c

2. Edition

VA 6/110 H 1450 CR 169-3 O 460 316 025 supersedes 5.75
company engine 798

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

Festoil-ISO 4113

 $0,4 \text{ mm} \pm 0,02 (\pm 0,04)$

2. Test Specifications Checking values in brackets

		re setting see reverse side			
1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,9-5,9	mm	0	
1 2 Supply pump pressure	1000	5,5-6,0	kp/cm²	0	
1.3 Full-load delivery without	500	60,0-63,0	cm ³ /1000 strokes	0	2,5
charge-air pressure Full-load delivery with charge-air	1250	85,5-86,5	cm ³ /1000 strokes	0,48	‡ *
pressure 1.4 Idle speed regulation	300	12,0-18,0	cm ³ /1000 strokes	0	3,0
1.5 Start	100	mind.100,0	cm ³ /1000 strokes	0	3,0
1.6 Full-load speed regulation	1550	36,0-44,0	cm ³ /1000 strokes	0,68	

2.1 Timing device	rev/min mm	450-550(420 Start	-580) 1,1-2,	650 ,1(0,8-2,4)(4,	1000 ,6-6,2) 6,	1050-1200 1-6,8(5,8-7,1)
2.2 Supply pump	rev/min kp/cm ⁻	200 1,4-1,9(1,2-	2,1)	(5,3-	1000 -6,2) 7,1-	1450 7,6(6,9-7,8)
Overflow delivery	rev/min cm³/10 s	500 55-100(40-11	0)			1450 55-100(40-110)
2.3 Fuel deliveries						
Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge-air press	sure kp/cm²
End stop	Full	1650-1680 (1630-1700) 1500 1480-1500 1450 1250 1000 500	max. 7,0 Start 81,0-84,0 max. 84,0	(35,0-45,0) (80,0-85,0) (85,0-87,0) (60,0-64,0)	0,68 0,68 0,68 0,60 0,42	
	Stop	1450	0			
Idle stop	Full	370-420 (350-440) 300	0	(11,0-19,0)		
End stop	Start	100 120-220	mind. 100,			

Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 50 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 2,6 mm = 24,6 mm		

WPP 001/4 SAV 5,2 d

2. Edition

VA 6/110 H 1450 CR 169-4 0 460 316 035

supersedes 12.78 company Saviem 798 Marine engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-stroke setting

 $0,4 \text{ mm} \pm 0,02(\pm 0,04)$

Pre-setting see reverse side

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1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,9-5,9 mm	0	
1 2 Supply pump pressure	1000	5,5-6,0 kp/cm ²	0	
1.3 Full-load delivery without	500	62,5-63,5 cm ³ /1000 strokes	0	2,5
charge-air pressure Full-load delivery with charge-air	1100	103,5-104,5 cm ³ /1000 strokes	0,73	
pressure 1 4 Idle speed regulation	300	12,0-18,0 cm ¹ /1000 strokes	0	3,0
1 5 Start	100	mind. 100,0 cm ³ /1000 strokes	0	
1 6 Full-load speed regulation	1550	76,0-84,0 cm ³ /1000 strokes	0,73	

2. Test Spe	ecificatio				
2.1 Timing device	rev/min	450-550(420-	580) 650	1000	1050-1200
	mm	Start	1,2-2,1(3,8-2,4)(4,6-	6,2) 6,1-6,8(5,8-7,1)
2 2 Supply pump	rev/min	200		1000	
	kp/cm²	1,4-1,9(1,2-	2,1)	(5,3-6,2)	7,1-7,6(6,9-7,8)
Overflow delivery	rev/min	500 55-100(40-11	0)		1450 55-100(40-110)
2.3 Fuel deliveries	CIII 710 9				
Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge air pressure kp/cm ²
End stop	Full	1730 1550 1450 1100 1100 500 500		(75,0-85,0) (98,5-103,5) (103,0-105,0 (63,5-68,5) (79,5-85,5) (62,0-64,0)	0,73 0,73 0,73 0,73 0 0,3
	Stop	1450	0		
Idle stop	Fuli	370-420 (350-440) 300	0	(11,0-19,0)	
End stop	Start	100 120-220	mind. 100,0	•	

A11

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 50 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV= 2,6 mm Dimension V = 24,6 mm

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WPP 001/4 PEU 2,1 e

2. Edition

VA 4(90 H 2250 CR 170 0 460 394 012

supersedes

11.73

company

Peugeot XDP 4/90

engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment VDT-WPP 161/4 B

.

Pre-setting see reverse side

Pre-stroke setting 0 mm $\pm 0.02(\pm 0.04)$

1. Settings	rev/min	Settings		Charge-air press	Difference in delivery
1 1 Timing device travel	2000	5,8-6,2	mm		
1 2 Supply pump pressure	2000	5,6-6,1	kp/cm²		
1.3 Full-load delivery without charge-air pressure	1400	37,5-38,5	cm ³ /1000 strokes		1,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4 Idle speed regulation	330	10,0-14,0	cm ³ /1000 strokes		3,0
1 5 Start	100	mind.70,0	cm ¹ /1000 strokes		
1.6 Full-load speed regulation	2350	12,0-18,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	es in brackets		
2.1 Timing device	rev/min mm	Start	1600	200 (3,4 - 4,8)(5,	0 2200-2400 3-6,4)6,9-7,6(6,6-7,9)
2.2 Supply pump	rev/min kp/cm ²	200 1,0-1,5(0,8		200 (5,4-6	0
Overflow delivery	rev/min cm³/10 s	500 55-100(40-1	10)		2250 55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop .	Full	2450 2350 2200 1400 850 500	max. 9,0 32,75-35,25 30,25-32,75 30,25-32,75	(37,0-39,0) (29,25-33,75)	
	Stop	2250	0		
Idle stop	Full	400-460 (380-480) 330	0	(10,0-14,0)	
End stop	Start	100 150-250	mind. 70,0	•	

Angle to the stop-plate	Pre-setting dimensions
Pump $ \alpha = 30 \pm 4^{\circ} $ $ \beta \pm 8^{\circ} $ $ \gamma = 18 + 2^{\circ} $ $ \delta = -6^{\circ} $	Pump Dimension IV = 2,0 mm Dimension V = 25,0 mm

WPP 001/4 SAV 5,2b

3. Edition

VA 6/110H 1400 CR 169 0 460 316 015

2. Test Specifications

supersedes 10.74

Saviem company 798-11 engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

Testoil-ISO

0,4 mm $\pm 0,02 (\pm 0,04)$

1.	Settings	rev/min	Settings		Charge air press kp/cm	Difference in delivery cm ³
1 1	Timing device travel	1000	4,9-5,9	mm	0	
1.2	Supply pump pressure	1000	5,5-6,0	kp/cm²	0	
13	Full-load delivery without charge-air pressure	500	60,0-63,0	cm ³ /1000 strokes	0	2,5
	Full-load delivery with charge-air pressure	900	80,0-81,0	cm 1/1000 strokes	0,48	ļ [
14	Idle speed regulation	300	12,0-18,0	cm ³ /1000 strokes	0	3,0
15	Start	100	mind.100,0	cm³/1000 strokes	0	
1.6	Full-load speed regulation	1500	36,0-44,0	cm ³ /1000 strokes	0,68	

Checking values in brackets

2.1 Timing device	rev/min mm	450-550(420- Start	580) 6 1,1-2,1(50 10 0,8-2,4) (4,6	000 1050-1200 5-6,2) 6,1-6,8(5,8-7,1)
		200	10	000	1400
2 2 Supply pump	rev/min kp/cm²	1,4-1,9(1,2-	2,1) 5,5-6,	0(5,3-6,2)	7,1-7,7(6,9-7,8)
Overflow delivery	rev/min	500			1400
	cm ³ /10 s	55-100(40-11	0)		55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1600-1650 (1580-1670)	0		0,68
		1500		(35,0-45,0)	0,68
		1420-1480 1400	Start 76 0-79 0	(75,0-80,0)	0,68
		900	80,0-81,0	(79,5-81,5)	
		750		(73,0-75,0)	
		500	60,0-63,0	(59,0-64,0)	0
	Stop	1400	0		
Idle stop	Full	370-420 (350-440)	0		
		300		(11,0-19,0)	
	Start	100	mind.100,0	,	
End stop		110-220		•	

Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 + 4^{\circ}$ $\beta = 50 + 8^{\circ}$ $\gamma = 30 + 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 5,0 mm Dimension V = 24,6 mm		

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WPP 001/4 MAN 3,3a

2. Edition

En

VA 6/100 H 1500 CR 181 0 460 306 196 supersedes 2.74

company MAN

engine D 0216 MXUL

Pre-stroke setting 0,

 $0.5 \, \text{mm} \pm 0.02 \, (\pm 0.04)$

2. Test Specifications Chacking values in brackets

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

1.	Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel	800	2,8-3,8 mm		
1.2	Supply pump pressure	800	4,6-5,1 kp/cm ²		
1.3	Full-load delivery without charge-air pressure	900	57, 5-58, 5 cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure		cm ³ /1000 strokes	1	
1.4	Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1.5	Start	100	mind. 80, 0 cm ³ /1000 strokes		
1.6	Full-load speed regulation	1600	26, 0-34, 0 cm ³ /1000 strokes		

2.1 Timing device	rev/min mm	400-520(370-	-550) 600	800	1200 1310-1440
		0,9-1,9(0,6-	-2,2) (2,5-4	,1) 5,6-6,6(5,3-6,9) 6,9-7,6(6,6-7,9)
2.2 Supply pump	rev/min	200		800	1500
	kp/cm ²	1,6-2,1(1,4-	-2,3)	(4,4-5,3)	7,2-7,7(7,0-7,9)
Overflow delivery	rev/min	500			1500
	cm ³ /10 s	55-100(40-	110)		55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1630-1730 (1610-1750)	0		
	.	1600		(25,0-35,0)	
		1500-1540	Start	(20,0 00,0)	
		1480		(57,5-62,5)	
		900		(57,0-59,0)	
		500	47,5-52,5	(46,5-53,5)	
	Stop	1500	0		
Idle stop	Fulf	400-460	0		
		(380-480) 300		(11,0-19,0)	
	Start	100	mind.80,0		
End stop		110-210			

Angle to the stop-plate	Pre-setting dimensions
Pump $a = 25 \pm 4^{\circ}$ $\beta = 55 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension

WPP 001/4 IHC 5,8c 1

1. Edition

VA 6/110 H 1100 BR 47-1 0 460 316 007

Pre-stroke setting

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes

company engine

D 358 TC

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

9.5 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

IHC

VDT-WPP 161/4 B

		Pre-setting see reverse side		
rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
700	6,0-7,0	mm		
700	5,3-5,8	kp/cm ²		
900	67,5-70,5	cm ³ /1000 strokes	0 bar	2,5
900	77,0-78,0	cm ³ /1000 strokes	0,5 bar	
300	12,0-18,0	cm ³ /1000 strokes		3,0
100	mind.100	cm ³ /1000 strokes		
1200	31,0-39,0	cm ³ /1000 strokes	0,5 bar	
	700 700 900 900 300 100	700 6,0-7,0 700 5,3-5,8 900 67,5-70,5 900 77,0-78,0 300 12,0-18,0 100 mind.100	rev/min Settings 700 6,0-7,0 mm 700 5,3-5,8 kp/cm² 900 67,5-70,5 cm³/1000 strokes 900 77,0-78,0 cm³/1000 strokes 300 12,0-18,0 cm³/1000 strokes 100 mind.100 cm³/1000 strokes	rev/min Settings Charge-air press kp/cm² 700 6,0-7,0 mm 700 5,3-5,8 kp/cm² 900 67,5-70,5 cm³/1000 strokes 0 bar 900 77,0-78,0 cm³/1000 strokes 0,5 bar 300 12,0-18,0 cm³/1000 strokes 100 mind.100 cm³/1000 strokes

2. Test Sp	ecificatio	NS Checking value	s in brackets		
-	rev/min	300-450 (27		700	930-970
	mm	Start	•	(5,7-7,3)	8,7-9,4(8,4-9,7)
2.2 Supply pump	rev/min	100		700	1100
	kp/cm²	1,5-2,0(1,3	-2,2)	(5,1-6,0)	6,7-7,2(6,5-7,4)
Overflow delivery	rev/min cm ³ /10 s	500 55-125(40-1	40)		1100 55-125(40-140)
	cm-/10 s	33-123(40-1			33 123(40 140)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1230-1280 (1210-1300)	0		0,5 bar
•		1200		(30,0-40,0)	0,5 bar
		1100	76,5-79,5	(75,5-80,5)	0,5 bar
	1	900 700	60 5-71 5	(76,5-78,5) (68,5-72,5)	0,5 bar 0,4.bar
		400	54,0-57,0	(53,0-58,0)	0,1 bar
	Stop	1100	0		
Idle stop	Full	360-420 (340-440)	0	(11,0-19,0)	
		100	mind. 100	·	
End stop	Start	150 500	mind. 100 max. 45,0		

Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 50 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 3,5 mm Dimension V = - mm		

LDA Start of timing advance 60 - 70 mmHg End of timing advance 350





WPP 001/4 FIA 2,3 a 5

1. Edition

VA 4/110 H 1100 BL 136-1 0 460 314 007

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes

Fiat company 854.10 engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers **Test Intructions and Test Equipment**

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

0.5 mm

Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	6,8-7,8	mm ,		
1.2 Supply pump pressure	800	4,8-5,3	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	60,0-61,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	340	17,0-23,0	cm ³ /1000 strokes		3,0
1.5 Start	100	mind.130	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1170	42,0-48,0	cm ³ /1000 strokes		

2. 1est Sp	ecificatio				
2.1 Timing device	rev/min mm	350-500(320- Start		800 5-8,1)	1000-1150 11,7-12,4(11,4-12,7)
2.2 Supply pump	rev/min kp/cm²	100 0,8-1,3(0,6-	1,5 (4,	800 6-5,5)	1100 6,5-7,0(6,3-7,2)
Overflow delivery	rev/min cm ³ /10 s	500 mind. 25	5		1000 55-125(40-140)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1210-1260 1170 1100 800 500	0 57,0-60,0 58,0-61,0	(41,0-49,0) (56,0-61,0) (59,5-61,5) (57,0-62,0)	
	Stop	1100	0		
Idle stop	Full	380-430 (360-450) 340	0	(16,0-24,0)	
End stop	Start	100 130-230	mind. 130		
	Ī	1	ł		

Angle to the stop-plate	Pre-setting dimensions	
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 35 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 0,5 mm Dimension V = - mm	

WPP 001/4 IHC 5,1 ; 2

1. Edition

VA 6/100 H 1150 BR 79 0 460 306 154

2. Test Specifications

Testoil-ISO 4113

supersedes

IHC company D 310

engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B Pre-setting see reverse side

Pre-stroke setting 0,3 $_{\text{mm}}$ Plunger lift of 1,0 mm related to outlet "A"

1. Se	ettings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timir	ng device travel	800	4,8-5,8	mm		
1.2 Supp	ply pump pressure	800	1,2-1,7	kp/cm²		
	load delivery without ge-air pressure	800	58,5-59,5	cm ³ /1000 strokes		2,5
Full-l	load delivery with charge-air			cm ³ /1000 strokes		
press 1.4 Idle s	sure speed regulation	300	7,0-13,0	cm ³ /1000 strokes	 	3,0
1.5 Start	196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-l	load speed regulation	1250	21,0-29,0	cm ³ /1000 strokes		

Checking values in brackets

2.1 Timing device	rev/min	400-550 (370 Start 100	-580) (4,	800 5-6,1) 800	950-112 9,7-10,4(9 1150	,4-10,7)
	kp/cm²	1,5-2,0(1,3-	2,2) ((1,0-1,9)		
Overflow delivery	rev/min cm ³ /10 s	500 mind. 25			1150 -55-125(40-	
23 Fuel deliveries		,				-
Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge-air p	ressure kp/cm ²
End stop	Full	1270-1340 (1250-1360) 1250 1160-1190 1130 800 500	0 Start 56,0-59,0 52,5-55,5	(20,0-30, (55,0-60, (58,0-60, (51,5-56,	0)	
	Stop	1150	0			
idle stop	Full	340-390 (320-410) 300	0	(6,0-14,0)	
End stop	Start	100 500 mind. 150	mind.90,0 max. 35,0	•		

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 7,0 mm Dimension V = - mm

0,5 mm

WPP 001/4 IHC 5,8 v

1. Edition

VA 4/100 H 1250 BR 77 0 460 304 164

supersedes

company

IHC D 239

engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

unger lift of 1,0 mm related to outlet "A"			VDT-WPP 161/4 B Pre-setting see reverse side		
1. Settings	rev/min	Settings		Charge air press kp/cm	Difference in delivery
1.1 Timing device travel	800	8,8-9,8	mm		
1.2 Supply pump pressure	800	4,9-5,4	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	67,5-68,5	cm ³ /1000 strokes		
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		
1 5 Start	100	mind.90,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	330	28,5-36,5	cm ⁻ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	s in brackets	
-	rev/min mm	200-350(170- Start	380) 800 (8,5-10,1)	1050-1200 13,7-14,4(13,4-14,7)
22 Supply pump	rev/min	100	800	1250
	kp/cm²	1,3-1,8(1,1-	2,0) (4,7-5	6,5-7,0(6,3-7,2)
Overflow delivery	rev/min	500		1250
	cm ³ /10 s	mind. 25		55-125(40-140)
23 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm²
End stop	Full	1350-1400 (1330-1420) 1330 1200 800 500	0 (27,5-63,0-66,0 (62,0-67,0-64,5-67,5 (63,5	-69.0)
	Stop	1250		
Cole stop	Full	390-440 (370-460) 350	0 (11,0	-19,0)
End stop	Start	100 500 mind. 180	mind. 90,0 35,0-60,0 (34,0	-61,0)

Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $Y = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = - mm Dimension V = - mm		

WPP 001/4 IHC 3.9 d 3

1. Edition

VA 4/100 H 1150 BR 69-1

supersedes

IHC

company

D 239

engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

0,5 mm

Plunger lift of 1,0 mm related to outlet "A"

Charge air press rev/min Difference in delivery 1. Settings kp/cm² 700 6,8-7,8 1.1 Timing device travel 700 4,9-5,4 1.2 Supply pump pressure kp/cm² 800 72,0-73,0 cm³/1000 strokes 1.3 Full-load delivery without 2,5 charge-air pressure cm³/1000 strokes Full-load delivery with charge-air pressure 350 12,0-18,0 1.4 Idle speed regulation cm 1/1000 strokes 3,0 (mech.) 100 mind.90.0 cm 1/1000 strokes 15 Start 1200 26,0-34,0 1.6 Full-load speed regulation cm³/1000 strokes

2. Test Sp	ecificatio	NS Checking value	es in brackets		
2.1 Timing device	rev/min mm	230-400 (20 Start	00-430)	700 (6,5-8,1)	920-1090 11,7-12,4(11,4-12,7)
2.2 Supply pump	rev/min	100	100		1150
	kp/cm²	1,3-1,8(1,1	-2,0)	(4,7-5,6)	6,5-7,0(6,3-7,2)
Overflow delivery	rev/min cm³/10 s	500 mind. 25			1150 55-125(40-140)
23 Fuel deliveries	**************************************				
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strok	es	Charge-air pressure kp/cm²
End stop	Full	1230 1200 1120 800 500		(25,0-35, 6,0 (71,0-76, (71,5-73, 8,5 (64,5-69,	0)
	Stop	1150	0		
idie stop	Full	390-450 (370-470) 350	0	(11,0-19,	0)
End stop	Start	100 mind.180	mind. 90		·

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $Y = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 3,0 mm Dimension V = - mm

WPP 001/4 IHC 3,9 d 2

1. Edition

VA 4/100 H 1100 BR €9 0 460 304 133

supersedes

company

IHC D 239

engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

0,5 mm

Plunger lift of 1,0 mm related to outlet "A"

	- 3-					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
1. Se	ettings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timu	ng device travel	700	6,5-7,5	mm		
1.2 Supp	ply pump pressure	700	4,8-5,3	kp/cm²		
	load delivery without ge-air pressure	800	69,0-70,0	cm ³ /1000 strokes		2,5
	load delivery with charge-air			cm ³ /1000 strokes		
· ·	sure speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
1.5 Start	t (mech.)	100	mind.90,0	cm³/1000 strokes		
1 6 Full-l	load speed regulation	1150	36,0-44,0	cm ³ /1000 strokes		

2. Test Sp	eciticatio rev/min	NS Checking value 230-400 (20		700	1100
2.1 Himing device	mm	230-400 (20 Start	0-430)		11,7-12,4(11,4-12,7)
2.2 Supply pump	rev/min kp/cm²	100		700	1100 6,2-6,7(6,0-6,9)
Overflow delivery	rev/min cm ³ /10 s	1,4-1,9(1,2-2,1) 500 mind. 25		1000 55-125(40-14	
23 Fuel deliveries		T III III Z		30 123(40 1-	10/
Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge-air pressure kp/cm/
End stop	Full	1180-1250 (1160-1270) 1150 1050 800 500	68,0-71,0	(35,0-45,0) (67,0-72,0) (68,5-70,5) (61,0-66,0)	
	Stop	1100	0		
Idle stop	Full	390-450 (370-470) 350	0	(11,0-19,0)	
End stop	Start	100 500 mind.180	mind. 90,0 30,0-60,0	(29,0-61,0)	

	0,5 4 2
Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 3,0 mm Dimension V = - mm

WPP 001/4 IHC 3,5d 1

1. Edition

VA 4/100 H 1250 BR 68-1 P 0 460 304 127 ..128

supersedes

company

IHC D 206

engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

0,5 mm Pre-stroke setting Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm ⁻	Difference in delivery cm ³
1.1 Timing device travel	800	8,8-9,8	mm		
1 2 Supply pump pressure	800	4,9-5,4	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	53,0 54,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0	cm ¹ /1000 strokes	<u> </u>	3,0
15 Start (mech.) 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	31,0-39,0	cm ¹ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	s in brackets		
2.1 Timing device	rev/min	200-350 (170		800	1050-1200
	mm			(8,5-10,1)	13,7-14,4(13,4-14,7)
2.2 Supply pump	rev/min	100		800	1250
	kp/cm²	1,3-1,8(1,1-	-2,0)	(4,7-5,6)	6,5-7,0(6,3-7,2)
Overflow delivery	rev/min cm³/10 s	500 mind. 25	55	1000 -125(40-140)	
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Fuli	1320-1370 (1300-1390) 1300 1200 800 500	0 48,5-51,5 43,5-46,5	(30,0-40,0) 5 (47,5-52,5) (52,5-54,5) 5 (42,5-47,5)	
	Stop	1250	0		
Idle stop	Full	390-440 (370-460) 350	0	(11,0-19,0)	
End stop	Start	100 500 mind.180	mind. 90, max.30,0-	.0	·

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 0,5 mm Dimension V = - mm

WPP 001/4 IHC 3,5 d

2. Edition

VA 4/100 H 1250 BR 68

Testoil-ISO 4113

supersedes

6.70

company engine

IHC D 206

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings	Charge-air press kp/cm²	Difference in delivery cm ³
1.1 Timing device travel	800	8,8-9,8 mm		
1.2 Supply pump pressure	800	4,9-5,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	57,0-58,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure		cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes	1	3,0
1.5 Start (mech.) 196 bar	100	mind.90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	38,0-46,0 cm ³ /1000 strokes		

	444				
2. Test Sp	ecificatio				
2.1 Timing device	rev/min	200-350(170	-380)	800	1050-1200
	mm	Start		(8,5-10,1)	13,7-14,4(13,4-14,7)
2.2 Supply pump	rev/min	100		800	1250
	kp/cm²	1,3-1,8(1,1	-2,0)	(4,7-5,6)	6,5-7,0(6,3-7,2)
Overflow delivery	rev/min cm³/10 s	500 mind. 25	55-	1000 125(40-140)	
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1330-1380 (1310-1400) 1300 1200 800 500	(3 56,5-59,5 (5 (5 49,5-52,5 (4	6,5-58,5)	
	Stop	1250	0	·	
idle stop	Full	390-440 (370-460) 350	0 (1	1,0-19,0)	
End stop	Start	100 500 mind. 180	mind. 90,0 max. 30,0-50		

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 0,5 mm Dimension V = - mm

WPP 001/4 IHC 3,9 c2

1. Edition

VA 4/100 H 1250 BR 67-1

supersedes

company

IHC D 239 engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

Festoil-ISO 4113

0,5 mm

2. Test Specifications

Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	8,8-9,8	mm		
1.2 Supply pump pressure	800	4,9-5,4	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	69,5-70,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
1.5 Start (mech.) 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	44,0-52,0	cm ³ /1000 strokes		

Checking values in brackets

2.1 Timing device	rev/min	200-350(170	-380) 300	1050-1200
	mm	Start	(8,5-10,1) 13,7-14,4(13,4-14,7)
2.2 Supply pump	rev/min	100	800	1250
	kp/cm²	1,3-1,8(1,1	-2,0) (4,7-5,6)	6,5-7,0(6,3-7,2)
Overflow delivery	rev/min	500	1000	
•	cm ³ /10 s	mind. 25	55-125(40-140)
23 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	crn³/1000 strokes	Charge-air pressure kp/cm²
End stop	Full	1350-1400 (1330-1420) 1300 1200 800 500	0 (43,0-53,0) 65,5-68,5 (64,5-69,5) (69,0-71,0) 64,5-67,5 (63,5-68,5)	
	Stop	1250	0	
Idle stop	Full	390-440 (370-460) 350	0 (11,0-19,0)	
	Start	100	mind. 90,0	

B11

End stop

Start

35,0-65,0 (34,0-66,0)

500

mind.180

Angle to the stop-plate	Pre-setting dimension
Pump $ \dot{\alpha} = 25 \pm 4^{\circ} $ $ \beta = 40 \pm 8^{\circ} $ $ \gamma = 30 - 8^{\circ} $ $ = 60 \pm 8^{\circ} $	Pump Dimension IV = 0,5 mm = - mm

WPP 001/4 IHC 3,9 b 3. Edition

VA 4/100 H 1100 BR 12-6 P Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) 0 460 304 111

11.73 supersedes IHC

company D 239-WW 50 6 D engine:

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

 0.5_{mm} $\pm 0.02 (\pm 0.04)$

1. Settings	rev/min	Settings		Charge-air press. kp/cm ²	Difference in delivery cm ²
1.1 Timing device travel	700	7,5-8,5	mm		
1.2 Supply pump pressure	700	4,5-5,0	kp/cm²		
1.3 Full-load delivery without charge-air pressure	900	68,0-69,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes	[3,0
1.5 Start	100	mind.85,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1150	41,0-49,0	cm ³ /1000 strokes		

fication nin nin nin 10 s	200-350(170 Start 100 1,3-1,8(1,1 500 rev/min 1200-1300 (1180-1320) 1150	-380) -2,0) cm ³ /1000 strokes 0	700	850-1000 11,7-12,5(11,4-12,8) 1100 6,0-6,5(5,8-6,7) 1100 55-125(40-140) Charge-air pressure kp/cm ²
nin m² nin 10 s	Start 100 1,3-1,8(1,1 500 	-2,0) cm ³ /1000 strokes 0	(7,3-8,8) 700 (4,3-5,2)	11,7-12,5(11,4-12,8) 1100 6,0-6,5(5,8-6,7) 1100 55-125(40-140)
min 10 s	100 1,3-1,8(1,1 500 rev/min 1200-1300 (1180-1320) 1150	cm ³ /1000 strokes 0	700 (4,3-5,2)	1100 6,0-6,5(5,8-6,7) 1100 55-125(40-140)
min 10 s	1,3-1,8(1,1 500 rev/min 1200-1300 (1180-1320) 1150	cm ³ /1000 strokes 0	(4,3-5,2)	6,0-6,5(5,8-6,7) 1100 55-125(40-140)
min 10 s	500 rev/min 1200-1300 (1180-1320) 1150	cm ³ /1000 strokes 0		1100 55-125(40-140)
10s	rev/min 1200-1300 (1180-1320) 1150	0 (40 0-E0 0)	55-125(40-140)
livery lever	1200-1300 (1180-1320) 1150	0 (40 0-E0 0)	
-	1200-1300 (1180-1320) 1150	0 (40 0-E0 0)	Charge-air pressure kp/cm ²
-	1200-1300 (1180-1320) 1150	0 (40 0-E0 0)	Charge-air pressure kp/cm ²
	(1180-1320) 1150	(40 0-E0 0\	
	Maximal deli 1050 900 500	66,5-68,5 (69,0-75,0) 65,5-69,5) 67,5-69,5)	
op	1100	0		
li	390-450 (370-470)	0	44 0 40 0	
	350	(11,0-19,0)	
art	100 500	mind. 85,0 30,0-60,0 (34,0-61,0)	
	t	(370-470) 350 100 500	(370-470) 350 (100 mind. 85,0	(370-470) 350 (11,0-19,0) 100 mind. 85,0

B13

Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 5,0 mm = - mm Dimension V		

WPP 001/4 IHC 3,9 b 3

1. Edition

VA 4/100 H 1050 BR 12-8

0 460 304 156

.. 157

nzzle-and-holden acce

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes

company IHC

engine: D 206 100 B-Lader

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting

 $0,5 \text{ mm} \pm 0,02(\pm 0,04)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

		 	Fre-setting see rever	36 3106
1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	8,0-9,0 mm		
1.2 Supply pump pressure	800	5,7-6,2 kp/cm²		
1.3 Full-load delivery without charge-air pressure	900	64,0-65,0 cm ³ /1000 s	trokes	2,5
Full-load delivery with charge-air pressure		cm ³ /1000 s	trokes	
1.4 Idle speed regulation	360	12,0-18,0 cm ³ /1000 s	trokes	3,0
1.5 Start	100	mind.90,0 cm ³ /1000 s	trokes	
1.6 Full-load speed regulation	1100	31,0-39,0 cm ³ /1000 s	trokes	·

2. Test Sp	ecification				
2.1 Timing device	rev/min	150-300(120	-330)	800	900-1020
	mm	Start		(7,7-9,3)	9,7-10,4(9,4-10,7)
2.2 Supply pump	rev/min	100		800	1050
	kp/cm ²	1,5-2,0(1,3	-2,2)	(5,5-6,4)	6,6-7,1(6,4-7,3)
Overflow delivery	rev/min	500		1000	
	cm ³ /10 s	mind.25	5!	5-125(40-140)	
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1140-1190 (1120-1210) 1100 1000 900 500	63,5-65,5	(30,0-40,0) (62,5-66,5) (63,5-65,5) (55,0-60,0)	
·	Stop	1050	0		
idle stop	Full	400-450 (380-470) 360	0	(11,0-19,0)	
End stop	Start	100 500 mind.160	mind.90,0 35,0-57,0	(34,0-58,0)	·

Testoil-ISO 4113

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BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 5,0 mm Dimension V = - mm

WPP 001/4 IHC 5,8 a

3. Edition

VA 6/100 H 1500 BR 19-1 0 460 306 084

· Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes 12.70 IHC company XDD 358 engine

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

2. Test Specifications

 $\pm 0,02 (\pm 0,04)$

Test Intructions and Test Equipment **VDT-WPP 161/4 B**

and Testers

Pre-stroke setting

0,3 _{mm}

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches**

			Pr	e-setting see revers	e 310e
1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ²
1.1 Timing device travel	1000	8,5-9,5	mm		
1.2 Supply pump pressure	1000	5,2-5,7	kp/cm²		
1.3 Full-load delivery without charge-air pressure	1200	76,0-77,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1 4 Idle speed regulation	250	22,0-28,0	cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1600	31,0-39,0	cm ³ /1000 strokes		•

2. 1691 Op		300-500(270-		1000	1250-1410
2.1 Timing device	rev/min	,	•		
	mm	Start	(8,2-9,8)	13,7-14,4(13,4-14,7)
2.2 Supply pump	rev/min	100		1000	1500
	kp/cm²	1,0-1,5(0,8-	1,7) (5,0-5,9)	6,8-7,3(6,6-7,5)
	rey/min	500			1500
Overflow delivery	cm ³ /10 s	mind. 25			85-155(70-170)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 stroke	s	Charge-air pressure kp/cm ²
End stop	Full .	1680-1780 (1660-1800) 1600 1400 1200 900 500	71,0-74,0	(30,0-40,0) (73,0-81,0) (75,5-77,5) (70,0-75,0) (61,0-67,0)	
	Stop		0		
Idle stop	Full	350-410 (330-430)	0	(04 0 00 0)	
End stop	Start	250 100 180 500	mind.90,0 mind.90,0 max. 60,0		·

Angle to the stop-plate	Pre-setting dimensions	
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 60 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump = 1,5 mm Dimension IV = - mm Dimension I = 7,0 mm Cimension II = 14,0 mm Dimension III = 34,8 mm	

WPP 001/4 IHC 2,4a 5

1. Edition

VA 3/100 H 950 BR 9-2

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

supersedes IHC

company D 155

Setting of the pointer at a stroke of 1 mm in

engine

relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers **Test Intructions and Test Equipment** VDT-WPP 161/4 B

0,3 Pre-stroke setting

2. Test Specifications

				Pr	e-setting see revers	se side
1.	Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel	500	7,1-8,1	mm		
1.2	Supply pump pressure	500	5,0-5,5	kp/cm²		
-	Full-load delivery without charge-air pressure	700	58,5-59,5	cm ³ /1000 strokes		.2,5
	Full-load delivery with charge-air pressure	,		cm ³ /1000 strokes		
	idle speed regulation	400	15,0-21,0	cm ³ /1000 strokes]	3,5
1.5	start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6	Full-load speed regulation	1000	36,0-44,0	cm ³ /1000 strokes		

Checking values in brackets

2. Test Sp 2.1 Timing device	rev/min	120-270(100-		500		700-850
	mm	Start		(6,8-8,4)	12,	7-13,4(12,4-13,7)
2.2 Supply pump	rev/min	100		500		950
	kp/cm²	2,2-2,7(2,0-	2,9)	(4,8-5,7)	7,	0-7,5(6,8-7,7)
Overflow delivery	rev/min	500	•			950
	cm ³ /10 s	mind. 27		55-125(40-135)		
2.3 Fuel deliveries	٥					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes			Charge-air pressure kp/cm²
End stop	Full	1020-1070 (1000-1090) 1000 930 700 500	0 62,5-65,5 53,0-56,0	(35,0-45 (61,5-66 (58,0-60 (52,0-57	,5) ,0)	
	Stop	950	0			
idle stop	Full	460-510 (440-530)	0			
		400 500	34,0-48,0	(14,0-22 (33,0-49	(0,0) (0,0)	
End stop	Start	100 mind. 180	mind. 90,	.0		

_		1110 Z,4 a J
	Angle to the stop-plate	Pre-setting dimensions
	Pump	Pump
	$\alpha = 25 \pm 4^{\circ}$	Dimension IV = 2,0 mm
	$^{\beta}$ = 40 ± 8°	Dimension V = - mm
	y = 30 - 8°	
	$= 60 \pm 8^{\circ}$	
ı		i i

WPP 001/4 IHC 2,4a 6

1. Edition

VA 3/100 H 1150 BR 9-3 1100 BR 9-4

 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes company IHC engine

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

2. Test Specifications Checking values in brackets

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment **VDT-WPP 161/4 B**

Pre-stroke setting

0,3 mm

Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	8,8-9,6 mm			
1.2 Supply pump pressure	700	5,9-6,4 kp/cm ²	2		
1.3 Full-load delivery without charge-air pressure	800	63,0-64,0 cm ³ /10	000 strokes		
Fult-load delivery with charge-air pressure		cm ³ /10	000 strokes		
1.4 Idle speed regulation	300	17,0-23,0 cm ³ /10	000 strokes	•	
1.5 Start 196 bar	100	mind. 87,0 cm ³ /10	000 strokes	·	
1 6 Full-load speed regulation	1150	36,0-44,0 cm ³ /10	000 strokes		

2.1 Timing device	rev/min	200-350(170-	380)	700		880-1030	
	mm	Start	(8	,5-9,9)	12,7-	13,4(12,4-1	3,7)
2.2 Supply pump	rev/min kp/cm²	100	2,2) (5	700 5,7-6,6)	7,3-	1150 7,8(7,1-8,0	1)
Overflow delivery	rev/min cm ³ /10 s	500 55-125(40-13		700		1150	
2.3 Fuel deliveries		•	·	•	•		
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Cha	arge-air pressure k	p/cm ²
End stop	Full	1180-1230 (1160-1250) 1150 1080 800 500	0 68,5-71,5 57,5-60,5	(35,0-45, (67,5-72, (62,5-64, (56,5-61,	0) 5) 5) 5)	•	
	Stop	1150	0				
Idle stop	Full .	430-440 (410-420) 300	0	(16,0-24,	0)		
End stop	Start	100 mind. 180	mind. 87,	0			

Angle to the stop-plate	Pre-setting dimensions	
Pump $a = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $Y = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 6,0 mm Dimension V = - mm	

322

B22

40

WPP 001/4 STE 2,4 a 1

1. Edition

En

VA 3/90 H 1200 CR 172-1 0 460 393 008

supersedes

company

Steyr

engine engine

WD 308.41

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

0,3 mm

2. Test Specifications Checking values in brackets

 \pm 0,02 (\pm 0,04)

1. Settings	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm ³
1.1 Timing device travel	800	1,4-2,2	mm		
1.2 Supply pump pressure	800	4,5-5,0	kp/cm²		
1.3 Full-load delivery without charge-air pressure	1180	60,5-61,5	cm ³ /1000 strokes	}	2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	300	9,5-15,5	cm ⁴ /1000 strokes		3,0
1.5 Start	100	mind.70,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	26,0-34,0	cm 11000 strokes		

2.1 Timing device	rev/min	420-570(39a	-600)	600 800	920-1170
	mm	Start	0,3-1	,3(0-1,6)(1,1-	-2,5)2,4-3,1(2,1-3,4)
22 Supply pump	rev/min	200		800	1200
	kp/cm ⁻	1,6-2,1(1,3	-2,4)	(4,3-5,	,2)5,9-6,4(5,7-6,6)
Overflow delivery	rev/min	500			1200 55-100(40-110)
	cm ³ /10 s	55-100(40-1	10		33-100(40-110)
2.3 Fuel deliveries			,		
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1360-1420 (1340-1440) 1300 .1240-1270 1180 800 500	0 Beginn 60,25-62,7 60,5 -63,5	(25,0-35,0) (60,0-62,0) 75(59,25-63,75) 5 (59,5-64,5)	
	Stop	1200	0		
idle stop	Full	400-450 (380-470) 300	0	(8,5-16,5)	
End stop	Start	100 120-220	mind.70,0		

B23

BOSCH

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 4,0 mm Dimension V = 24,6 mm

WPP 001/4 IHC 2,9 a

2. Edition

VA 3/100 H 1050 BR 11

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes 6.66

company engine

IHC D 179

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-stroke setting

Testoil-ISO 4113

 $0.3 \text{ mm} \pm 0.02$

Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ²
1.1 Timing device travel	700	7,6-8,6	mm .		
1.2 Supply pump pressure	700	5,0-5,5	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	64,5-65,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		_
1.4 Idle speed regulation	250	23,5-29,5	cm ³ /1000 strokes		3,0
1.5 Start (mec.) 196 bar	100	mind.95,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1100	41,0-49,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	s in brackets		
2.1 Timing device	rev/min mm	250-400(220 Start	-430)	700 (7,3-8,9)	950-1100 13,7-14,4(13,4-14,7)
2.2 Supply pump	rev/min kp/cm²	100 1,5-2,0(1,	3-2,2)	700 (4,8-5,7)	1050 6,5-7,0(6,3-7,2)
Overflow delivery	rev/min cm ³ /10 s	500 mind, 27	55-	1000 -125(40-135)	1050 55-125(40-135)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 stro	kes	Charge-air pressure kp/cm ²
End stop	Full	1140-1200 (1120-1220) 1100 1030 800 500	68,5-71	(40,0-50,0),5 (67,5-72,5) (64,0-66,0),5 (57,5-61,5)) [
	Stop	1050	0		
idle stop	Full	310-360 (290-380)	0		
End stop	Start	250 500 100 mind. 150	max. 56, mind.95,		

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 6^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = - mm Dimension V = - mm

Re Item 4: Adjustment of spring-loaded starting/shutoff stop

Set start position at pump, i.e.: move speed-control lever to idle stop, move injected-quantity control lever to start position and test starting fuel delivery at stated cranking speed.

If control spool is installed correctly, starting fuel delivery must switch to full-load delivery before max. engine-speed stop is reached. Otherwise, control spool is to be turned through 180°.

Then set spring-loaded starting/shutoff stop without overriding spring in stop housing.

Note:

With stop check, spring-loaded stop is overriden and zero delivery must be attained.

0,3 _{mm}

Plunger lift of 1,0 mm related to outlet "A"

1270

WPP 001/4 STE 4,0 a

2. Edition

VA 4/100 H 1200 BR 145 0 460 304 069

1.6 Full-load speed regulation

Pre-stroke setting

supersedes

6.70 Steyr company

engine

WD 410 t

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

cm³/1000 strokes

Pre-setting see reverse side Charge air press | Difference in delivery 1. Settings cm³ kp/cm mm 1.1 Timing device travel 008 4,8-5,9 kp/cm² 1.2 Supply pump pressure 800 4,9-5,4 1.3 Full-load delivery without cm³/1000 strokes 2,5 800 62,0-63,0 charge-air pressure cm³/1000 strokes Full-load delivery with charge-air 16,0-22,0 cm³/1000 strokes 250 3,0 1.4 Idle speed regulation 100 mind.80,0 cm³/1000 strokes 1.5 Start

36,0-44,0

2. Test Sp	ecificatio	NS Checking value	es in brackets		
=	rev/min	400-550(370)-580)	800	1000-1150
	mm	Start		(4,5-6,1)	8,7-9,4(8,4-9,7)
2.2 Supply pump	rev/min	100	9-1 . 8)	800 (4,7-5,6)	1200 6,3-6,8(6,1-7,0)
Overflow delivery	rev/min cm³/10 s	500 mind. 25			1000 55-125(40-140)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1310-1360 (1290-1380) 1270 1150 800 500		(35,0-45,0) (62,5-67,5) (61,5-63,5) (59,5-64,5)	
	Stop	1200	0		
Idle stop	Full	320-380 (300-400) 250		(15,0-23,0)	
End stop	Start	100 110-210	mind.80,0		

	······································	51E 4,0 a -2-
Angle	to the stop-plate	Pre-setting dimensions
Pump α β γ	= 25 ± 4° = 40 ± 8° = 30 - 8° = 60 + 8°	Pump Dimension IV = 6,0 mm Dimension V = - mm

44

WPP 001/4 IHC 3,5 b 2. Edition

En

VA 4/100 1250 BR 8-1 0 460 304 077 Nozzle-and-holder assembly 1.688 901 020 (172 + 3 bar) upersedes 6.69

npany IHC

engine.

D 206 / 8-41

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting

 $0.5 \text{ mm} \pm 0.02 (\pm 0.04)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

				File setting see reverse side		
1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ²	
1.1 Timing device travel	800	6,3-7,3	mm .			
1.2 Supply pump pressure	800	4,9-5,4	kp/cm²			
1.3 Full-load delivery without charge-air pressure	800	62,0-63,0	cm ³ /1000 strokes		2,5	
Full-load delivery with charge-air pressure			cm ³ /1000 strokes			
1.4 Idle speed regulation	400	22,0-28,0	cm ³ /1000 strokes		3,0	
1.5 Start 196 bar	100	mind. 85,0	cm ³ /1000 strokes			
1.6 Full-load speed regulation	1290	46,0-54,0	cm ³ /1000 strokes			

2. Test Sp	ecificatio	NS Checking value	es in brackets		
2.1 Timing device	rev/min	350-500(320-	530)	800	1030-1170
	mm	Start		(6,0-7,6)	9,7-10,4(9,4-10,7)
2.2 Supply pump	rev/min	100		800	1250
.,	kp/cm²	1,0-1,5(0,8-	1,7)	(4,7-5,6)	6,8-7,3(6,6-7,5)
Overflow delivery	rev/min	500		1000	1250
•	cm ³ /10 s	mind. 27		55-125(40-135	5) 55-125(40-135)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1350-1390 (1330-1410)	0		·
		1370 1290 1200 800 500	max. 5,0 64,5-67,5 54,5-57,5	(45,0-55,0) (63,5-68,5) (61,5-63,5) (53,5-58,5)	
	Stop	1250	0		
idle stop	Full	480-530 (460-550) 400	0	(21,0-29,0)	
Fnd stop	Start	100 500	mind. 85,0 35,0-50,0		

Angle to the stop-plate	Pre-setting dimensions	
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 6^{\circ}$ $\delta = 60 \pm 8^{\circ}$	BR 8-1 Pump Dimension IV= 4,0 mm Dimension V= - mm	

WPP 001/4 MWM 5,1a

2. Edition

VA 6/100 H 1150 BR 35 0 460 306 068

supersedes

company

engine

MWM D 225

12.68

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

0,4 mm

Plunger lift of 1,0 mm related to outlet "A"

1. Settings					Charge-air press kp/cm²	Difference in delivery cm ³
1.1 Timing device	e travel	700	5,5-6,5	mm		
1.2 Supply pump	pressure	700	4,9-5,4	kp/cm²		
1.3 Full-load delig		1100	54,5-55,5	cm ³ /1000 strokes		2,5
Full-load deli	very with charge-air			cm ³ /1000 strokes		<u> </u>
pressure 1.4 Idle speed re	gulation	300	9,5-15,5	cm ³ /1000 strokes		3,0
1.5 Start	(mec.)	100	mind. 70,0	cm ³ /1000 strokes		
1 6 Full-load spe	ed regulation	1190	31,0-39,0	cm 1/1000 strokes		

2. Test Spe	cificatio	ns Checking value:		700		000 4000
2.1 Timing device	rev/min	220-380(190-4		700		920-1080
l	mm	Start	İ	(5,2-6,8)	8,7	7-9,4(8,4-9,7)
2 2 Supply pump	rev/min	100		700		1150
	kp/cm²	1,5-2,0(1,3-	2,2)	(4,7-5,6)	6,4	1-6,9(6,2-7,1)
		500		1000		
	rev/min cm³/10 s	mind.25	!	55-100(40-1	10)	
2.3 Fuel deliveries						
Speed control lever	Delivery lever	rev/min	cm ³ /1000 stroke	S		Charge-air pressure kp/cm²
End stop	Full	1240-1290 (1220-1310) 1190 1100 900 500	0 57,5-59,5 43,0-47,0 0	(30,0-40 (54,0-56 (56,5-60 (42,0-49	(0,0)	
idle stop	Full	370-430 (350-450)	0			
		300	•	(8,5-16,	,5)	
End stop	Start	100 500 mind. 150	mind.70,0 max. 37,5			

0

Angle to	o the stop-plate	Pre-setting dimensions
Pump a ß	= 25 ± 4° = 40 ± 8° = 30 - 8°	Pump = - mm Dimension IV Dimension V = - mm Dimensions for pre-setting
δ	= 60 ± 8°	Dimension I = Dimension II = According to the wear-parts list Dimension III= 34,4 mm

C8

WPP 001/4 IHC 5,1 c 1

3. Edition

VA 6/100 H 1500 CR 20

Testoil-ISO 4113

supersedes

10.76

company engine

IHC D 310

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

0,4 _{mm} Pre-stroke setting Plunger lift of 1,0 mm related to outlet "A"

2. Test Specifications Checking values in brackets

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	1000	4,5-5,5	mm		
1.2 Supply pump pressure	1000	4,5-5,0	kp/cm²		
1.3 Full-load delivery without charge-air pressure	1200	65,5-66,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure 1 4 Idle speed regulation	250	12,0-18,0	cm ³ /1000 strokes cm ³ /1000 strokes	ļ	3,0
15 Start 196 bar	100	mind.75,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1580	18,5-26,5	cm 1/1000 strokes		

	480-650 (450-	-680)	1000	1400
mm	Start	(4	1,2-5,3)	7,9-8,6(7,6-8,9)
rev/min	200		1000	1500
kp/cm²	0,9-1,4(0,7-	1,6) (4	1,3-5,2)	6,7-7,2(6,5-7,3)
rev/min	500			1500
cm ³ /10 s	55-100(40-11	0)		55-100(40-110)
Delivery lever	rev/min	cm³/1000 strokes		Charge-air pressure kp/cm²
Full	1650-1750 (1630-1770) 1580 1480-1500 1400 1200 500	Start 65,0-68,0	(17,5-27,5) (64,0-69,0) (65,0-67,0) (51,0-57,0)	
Full	300-400 (280-420) 250	0	(11,0-19,0)	
Start	100 220-300	mind. 75,0		
	rev/min kp/cm² rev/min cm³/10 s Delivery lever Full Stop Full	rev/min	rev/min	rev/min

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 55 \pm 8^{\circ}$ $\gamma = 30 - 9^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump = 1,0 mm Dimension IV Dimension V = 25,0 mm

WPP 001/4 IHC 5,8 d 2

1. Edition

estoil-ISO 4113

VA 6/100 H 1050 BR 21-2 0 460 306 117

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes company

engine

IHC D 358

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-stroke setting

 $0.3_{mm} \pm 0.02(\pm 0.04)$

Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press. kp/cm ²	Difference in delivery cm ²
1.1 Timing device travel	800	7,3-8,3	inm		
1.2 Supply pump pressure	800	5,7-6,2	kp/cm ²		
1.3 Full-load delivery without	800	65,0-66,0	cm ³ /1000 strokes		2,5
charge-air pressure Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	300	12,0-18,0	cm ³ /1000 strokes		3,0
	100	mind.85,0	cm³/1000 strokes		
1.5 Start (mech.) 196 bar 1.6 Full-load speed regulation	1130	31,0-39,0	cm ³ /1000 strokes		

2. Test Sp	rev/min	NS Checking value 300-450 (270-	480)	800	880-1020	
	mm	Start		(7,0-8,6)	9,7-10,4(9,4-10,7)	
2.2 Supply-pump	rev/min	100	2.5)	800 (5.5-6.4)	1050 6,7-7,2(6,5-7,4)	
Overflow delivery	kp/cm² rev/min cm³/10 s			1000 27-55(13-70)		
2.3 Fuel deliveries	<u> </u>					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²	
End stop	Full	1150-1220 (1130-1240) 1130 1000 800 500	0 67,5-70,5 66,5-69,5	(30,0-40,0) (66,5-71,5) (64,5-66,5) (65,5-70,5)		
	Stop	1050	0			
Idle stop	Full	400-460 (380-480) 300	0	(11,0-19,0)		
End stop	Start	100 500 mind.180	mind. 85,0 30,0-65,0	(29,0-66,0)	·	

Angle t	o the stop-plate	Pre-setting dimensions	
Pump a B y ō	= 25 ± 4° = 40 ± 8° = 30 ~ 8° = 60 ± 8°	Pump Cimension IV = 4,5 mm Dimension V = - mm	

C12

En

WPP 001/4 IHC 5,8 d 2. Edition

supersedes

n

Testoil-ISO 4113

VA 6/100 H 1200 BR 21-1 -P Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

company I H C D 358

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intractions and Test Equipment VDT-WPP 161/4 R

5.72

Pre-stroke setting

 $0,3_{mm} \pm 0.02 (\pm 0.04)$

Pre-setting see revorse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	5,8-6,8	mm		
1.2 Supply pump pressure	800	5,0-5,5	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	64,5-65,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 idle speed regulation	350	9,5-15,5	cm ³ /1000 strokes		3,0
1.5 Start (mec/h.) 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load spe/ed regulation	1300	31,0-39,0	cm ³ /1000 strokes		

2. Test Sp 2.1 Timing device	rev/min	ONS Checking value 330-470 (300-	·500)	800	1000-1150	
	mm	Start	(5,5-7,1)	9,7-10,4(9,4-10,7)	
2.2 Supply pump	rev/min	100		800	1200	
	kp/cm²	1,5-2,0(1,3-	.2,2) (4,8-5,7)	6,4-6,9(6,2-7,1)	
Overflow delivery rev/min						
_	cm ³ /10 s		m	ind. 27		
2.3 Fuel deliveries	cm ³ /10 s		m	ind. 27		
2.3 Fuel deliveries Speed control lever	cm ³ /10 s	rev/min	m cm ³ /1000 strokes	ind. 27	Charge-air pressure kp/cm ²	
	1	1360-1410 (1340-1430) 1300			Charge-air pressure kp/cm ²	
Speed control lever	Delivery lever	1360-1410 (1340-1430)	cm ³ /1000 strokes	(30,0-40,0) (67,0-72,0) (64,0-66,0)	Charge-air pressure kp/cm ²	

0

0

mind. 90.0

max. 47,5

(8,5-16,5)

1200

400-460

(380-480) 350

100

500

mind. 180

End stop

idle stop

Stop

Full

Start

Angle to the stop plate	Pre-setting dimensions	
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump = 2,0 mm Dimension IV Dimension V = - mm	

WPP 001/4 IHC 3,9 f

3. Edition

En

estoil-ISO 4113

VA 4/100 H 1250 CR 90 Nozzle-and-holder assembly 0 460 304 219 1 688 901 020 (172 + 3 bar)

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting

0,5 _{mm}

2. Test Specifications

± 0,04

supersedes

3.76

company IHC

engine DT 239

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

				e-setting see revers	10 3100
1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	4,7-5,7	mm .		
1.2 Supply pump pressure	800	5,0-5,5	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	79,0-80,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	400	17,0-23,0	cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	43,5-51,5	cm ³ /1000 strokes		

Checking values in brackets

2.1 Timing device	rev/min mm	210-340(180- 0,7-1,7(0,4-	370) 400 2,0) (4,4-6,		1000 1080-1180 ,9-7,5)6,9-7,6(6,6-7,9)
2.2 Supply pump	rev/min	200		800	1250
	kp/cm²	1,8-2,3(1,6-	2,5)	(4,8-5,7)	6,7-7,2(6,5-7,4)
Overflow delivery	rev/min	500			1250
	cm ³ /10 s	55-100(40-11	0)		55-100(40-110)
2.3 Fuel deliveries					Ö
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1360-1410 (1340-1430) 1300 1240-1260 1200 800 500	0 Start 75,5-78,5 78,0-81,0	(42,5-52,5) (74,5-79,5) (78,5-80,5) (77,0-82,0)	
	Stop	1250	0		
idle stop	Full	490-540 (470-560) 400	0	(16,0-24,0)	
End stop	Start	100 220-320	mind. 90,0		·

Angle to the stop-plate	Pre-setting demensions	
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $v = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 2,0 mm Dimension V = 24,5 mm	

WPP 001/4 IHC 5,8 b 1 2. Edition

VA 6/100 H 1100 CR 36

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

supersedes

11.73 IHC XDD 358

company engine

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

 $0.3_{\rm mm}$

Pre-stroke setting

± 0,04

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

				re setting see reverse side	
1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery
1.1 Timing device travel	700	3,6-4,6	mm		
1.2 Supply pump pressure	700	5,7-6,2	kp/cm ²		}
1.3 Full-load delivery without	800	66,5-67,5	cm ³ /1000 strokes	<u> </u>	2,5
charge-air pressure Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	300	7,0-13,0	cm ³ /1000 strokes	1	3,0
1.5 Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1160	31,0-39,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	s in brackets		
2.1 Timing device	rev/min mm	Start 130-230(100- 1,0-2,0(0,7-	260 300 2,3) (3,3-4	700 ,9) 4,3-5,3(4	850 980-1100 ,0-5,6)5,2-5,9(4,9-6,2)
2.2 Supply pump	rev/min kp/cm²	200 3,2-3,7(3,0-	3,9)	700 (5,5-6,4)	1100 7,0-7,5(6,8-7,7)
Overflow delivery	rev/min cm ³ /10 s	500 55-100(40-11	0)		1100 55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1180-1230 (1160-1250) 1160 1120-1140 1100 800 500	Start 71,5-74,5	(30,0-40,0) (70,5-75,5) (66,0-68,0) (61,0-66,0)	
	Stop	1100	0		
idle stop	Full	380-450 (360-470) 300	0	(6,0-14,0)	
End stop	Start	100 220-320	mind.90,0		•
i	1	,	1		∤

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 50 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 3,6 mm Dimension V = 24,6 mm

C18

WPP 001/4 FIA 2,6 c

3. Edition

0 460 313 019

VA 3/11 H 1200 CL 134-9 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

4.79 supersedes

company

engine

Fiat 8035-04265

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Senches

and Testers

Test Intructions and Test Equipment

Pre-setting see reverse side

VDT-WPP 161/4 B

Pre-stroke setting

 $0.7 \text{ mm} + 0.02(\pm 0.04)$

Charge-air press | Difference in delivery | cm² Settings rev/min 1. Settings 1.1 Timing device travel 4,55-4,65 mm 800 4,8 -5,3 1.2 Supply pump pressure 800 cm3/1000 strokes 1.3 Full-load delivery without 68,0-69,0 2,5 800 charge-air pressure cm3/1000 strokes Full-load delivery with charge-air cm3/1000 strakes 17,0-23,0 3.0 300 1 4 Idle speed regulation mind. 120,0 cm³/1000 strokes 100 1.5 Start cm3/1000 strokes 36,0-44,0 1300 1 6 Full-load speed regulation

2. Test Spe	cification	1S Checking value	s in brackets		
	ev/min nm	Start 330-430(300- 1,8-2,8(1,5-	460) 60 3,1)(4,25-4	0 80'0 ,95)6,9-7,9(6,	1050 1100-1230 ,6-8,2)8,9-9,6(8,6-9,9)
55,50	ev/min sp/cm²	200		800	1200
	(P/CI:I	1,7-2,1(1,5-	2,3)	(4,6-5,5)	6,6-7,1(6,4-7,3)
	rev/min cm ³ /10 s	500 55-100(40-11	0)		1200 55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1360-1410 (1340-1430) 1300 1250-1270 1200 800 500	0 Start 61,0-64,0 62,5-66,5	(35,0-45,0) (60,0-65,0) (67,5-69,5) (61,5-67,5)	
	Stop	1200	0		
Idle stop	Full	340-400 (320-380) 300	0	(16,0-24,0)	
			mind 120		
	Start	100	mind. 120,	U	
End stop					

	FIA 2,6 c	-2-
Angle to the stop-plate	Pre-setting dimensions	
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 3,80 mm Dimension V = 24,65 mm	

WPP 001/4 FIA 2,6 a 1

1. Edition

VA 3/110 H 1250 CL 134-6 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

company

supersedes

Fiat 8035-02201

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches

Test intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

0 460 313 016

 $0.7 \text{ mm} \pm 0.02 (\pm 0.04)$

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery
1.1 Timing device travel	800	4,55-4,65	mm .		
1.2 Supply pump pressure	800	4,8 -5,3	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	66,5-67,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	300	17,0-23,0	cm ³ /1000 strokes		3,0
15 Start (autom.)	100	mind.120,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1350	36,0-44,0	cm ³ /1000 strokes		

2. Test Sp	rev/min	NS Checking value Start	· - · · · · · · · · · · · · · · · · 		
2.1 Timing device	mm.	330-430(300-	460) 600 3,1)(4,25-4,		050 1100-1230 ,6-8,2) 8,9-9,6(8,6-9,9)
2.2 Supply pump	rev/min	200		800	1250
	kp/cm ⁻	1,7-2,1(1,5-	2,3)	(4,6-5,5)	6,7-7,2(6,5-7,4)
Overflow delivery	rev/min	500			1250
	cm ³ /10 s	55-100(40-11	0)		55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1420-1470 (1400-1490) 1350 1300-1320 1230 800 500	0 Start 61,0-64,0 61,0-65,0	(35,0-45,0) (60,0-65,0) (66,0-68,0) (60,0-66,0)	
	Stop	1250	0		
Idle stop	Full	340-400 (320-420) 300	0	(16,0-24,0)	
	Start	100	mind. 120,0)	
End_stop	· R	110-230			

Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 3,80 mm Dimension V = 26,40 mm		

WPP 001/4 FIA 2,6 a

2. Edition

VA 3/110 H 1200 CL 134-5 0 460 313 015

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

7.73 supersedes Fiat

company engine

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

8035

Test Intructions and Test Equipment

VDT-WPP 161/4 B

cm3/1000 strokes

Pre-stroke setting

 $0,7_{mm} \pm 0.02(\pm 0.04)$

Pre-setting see reverse side Difference in delivery cm³ Charge-air press kp/cm² Settings rev/min 1. Settings

4,1-5,1800 mm 1.1 Timing device travel 4,8-5,3 800 kp/cm² 1.2 Supply pump pressure 2,5 66,5-67,5 800 cm3/1000 strokes 1.3 Full-load delivery without charge-air pressure cm3/1000 strokes Full-load delivery with charge-air 17,0-23,0 3,0 300

cm3/1000 strokes 1.4 Idle speed regulation mind. 120,0 100 cm³/1000 strokes 1.5 Start 36,0-44,0 1300

55-100(40-110)

2. Test Specifications Checking values in brackets

2.2 Supply pump	mm rev/min	1,8-2,8(1,5-3,1)	(3,8-5,4) 6,9-7,9 800	(6,6-8,2)8,9-9,6(8,6-9,9) 1200
	kp/cm²	1,7-2,1(1,5-2,3)	(4,6-5,5) 6,6-7,1(6,4-7,3)

500 rev/min Overflow delivery

cm³/10 s

1200 55-100(40-110)

1 6 Full-load speed regulation

Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
Full	1360-1410	0		
-		i		
			(35,0-45,0)	
	1250-1270	Start		†
•	1180	60,5-63,5	(59,5-64,5)	
	800		(66,0-68,0)	
	500	61,0-65,0	(60,0-66,0)	
Stop	1200	0		
Full	340-400	0		
	1 '		(16 0-24 0)	
	300	1	(10,0224,0)	
	100	mind. 65,0		
	100	partitue. 0550		
	rull Stop	1360-1410 (1340-1430) 1300 1250-1270 1180 800 500 1200 Full 340-400 (320-420) 300	Table 1360-1410 (1340-1430) 1300 1250-1270 Start 60,5-63,5 800 500 61,0-65,0 1200 0 1200 1200 1200 1200 1200 1200	Tail 1360-1410 (1340-1430) (35,0-45,0) (35,0-45,0) (35,0-45,0) Start (60,5-63,5 (59,5-64,5) (66,0-68,0) (66,0-66,0) (60,0-66,0) (1200 0 (320-420) 300 (16,0-24,0)

Angle to the stop-piate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 3,80 mm Dimension V = 26,40 mm

WPP 001/4 FIA 3,5 c

2. Edition

VA 4/110 M 1250 CL 136-8 ·Nozzle-and-holder assembly 0 460 314 038

1 688 901 020 (172 + 3 bar)

supersedes company

10.77

engine

Fiat 8045-02270

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting

2. Test Specifications

 $0.5 \text{ mm} \pm 0.02(\pm 0.04)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,7-5,5	mm .		
1.2 Supply pump pressure 1.3 Full-load delivery without	1000 1250	5,3-5,8 65,5-68,5	cm ³ /1000 strokes		2,5
charge-air pressure Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	300	22,0-28,0	cm ³ /1000 strokes		3,0
Start 1.6 Full-load speed regulation	100 1400	mind.110,0 26,0-34,0	cm ³ /1000 strokes		

Checking values in brackets

2.1 Timing device	rev/min	420-570(390	-600) 70	00 1000	1100-1250
	mm	Start	1,5-2,5	(1,2-2,8)(4,3-	-5,8) 6,1-6,8(5,8-7,1)
2.2 Supply pump	rev/min	200		1000	1250
	kp/cm²	1,5-2,0(1,3	-1,8)	(5,1-6,0)) 6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500			1250
_	cm ³ /10 s	55-100(40-1	10)		55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1450-1500 (1430-1520) 1400 1300-1330 1250 800 500	0 Start 67,5-68,5 59,0-62,0	(25,0-35,0) (64,5-69,5) (66,5-69,5) (58,0-63,0)	•
	Stop	1250	0		
Idle stop	Full	400-450 (380-470) 300	0	(21,0-29,0)	
	Start	100	mind.110,	.0	
End stop		110-230			

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 35 \pm 8^{\circ}$ $Y = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 3,60 mm Dimension V = 24,65 mm

WPP 001/4 FIA 3,5 a

2. Edition

VA 4/110 H 1200 CL 136-4 0 460 314 023

supersedes

7.73

company engine

Fiat 8045

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0.5 Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings	Charge-air press kp/cm ⁻	Difference in delivery cm ³
1.1 Timing device travel	800	3,5-4,5 mm		
1.2 Supply pump pressure	800	5,3-5,8 kp/cm ²		
1.3 Full-load delivery without	800	68,0-69,0 cm ³ /1000 stroke	5	2,5
charge-air pressure Full-load delivery with charge-air		cm³/1000 stroke		•
pressure 1.4 idle speed regulation	300	17,0-23,0 cm ¹ /1000 stroke	 	3,0
15 Start (autom.)	100	mind. 130,0 cm ¹ /1000 stroke	s	
1.6 Full-load speed regulation	1270	36,0-44,0 cm /1000 stroke	5	

2. Test Spo 2.1 Timing device	rev/min	NS Checking value 220-370(190	- 340) 50	00	800	1100-1230
2.1 Inning device	mm	Start	1,5-2,5(1	,2-2,8)	(3,2-4,8)	6,1-6,8(5,8-7,1)
2.2 Supply pump	rev/min	200			800	1200
	kp/cm²	1,8-2,3(1,6	-2,5)		(5,1-6,0)	6,9-7,4(6,7-7,6)
Overflow delivery	rev/min	500				1200
·	cm ³ /10 s	55-100(40-1	10)			55-100(40-110)
23 Fuel deliveries			-			
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Cha	irge-air pressure kp/cm²
End stop	Fult	1330-1380 (1310-1400) 1270 1220-1240 1180 800 500	0 Start 65,0-68,0 65,0-58,0	(67,0-7)	59,0) 70,0)	
	Stop	1200	0			
idie stop	Full	340-400 (320-420) 300	0	(16,0-2	24,0)	
		100	mind. 130,	0+		4
End stop	Start	110-230		,		•

Festoil-ISO 4113

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 3,0 mm Dimension V = 24,6 MM

WPP 001/4 IHC 5,1 i 2. Edition

0 460 306 136

2. Test Specifications

2.1 Timing device rev/min

VA 6/100 H 1050 BR 21-3 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes

4.73

company engine:

900

IHC D 310

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting

Testoil-ISO 4113

 $0,3 \text{ mm} \pm 0,02(\pm 0,04)$

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment

950-1050

VDT-WPP 161/4 B

Pre-setting see reverse side

1. S	ettings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timi	ing device travel	900	5,8-6,8	mm		
1.2 Sup	pply pump pressure	900	6,0-6,5	kp/cm²		
	l-load delivery without irge-air pressure	800	57,5-58,5	cm ³ /1000 strokes		2,5
	load delivery with charge-air			cm ³ /1000 strokes		
	ssure espeed regulation	500	17,0-23,0	cm ³ /1000 strokes		3,0
1 5 Star	n 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full	l-load speed regulation	1150	26,0-34,0	cm ³ /1000 strokes		

Checking values in brackets

| 480-620 (450-650)

_	1				
	mm	Start		(5,5-7,1)	6,7-7,4(6,4-7,7)
2.2 Supply pump	rev/min	100		900	1150
	kp/cm²	2,1-2,6(1,9	9-2,8)	(5,8-6,7)	6,6-7,1(6,4-7,3)
Overflow delivery	rev/min	500		1000	
Overnow delivery	cm ³ /10 s	mind. 27		27-55(13-7	0)
2.3 Fuel deliveries	<u></u>	. 			
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1200-1250	0		
		1150 1000 800	61,0-63.0	(25,0-35,0) (60,0-64,0) (57,0-59,0) (54,0-59,0)	-
		500	55,0-58,0	(54,0-59,0)	
	Stop	1050	0		
idle stop	Full	580-650	0		
		(560-630) 500		(16 - 24)	
	Start	100	mind. 90,0		
End stop	Ciari	500 mind. 180	mind. 32,5		·

Angle to the stop-plate	Pre-setting dimensions	
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 35 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 2,0 mm Dimension V = 24,6 mm	

WPP 001/4 IHC 3,5c 1 2. Edition

VA 4/100 H 1050 CR 12-8 Nozzle-and-holder assembly 1 688 901 020 (1/2 + 3 bar)

4.73 supersedes

engine

600

IHC D 206

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

850-1000

 $0.5 \text{ mm} \pm 0.04$ Pre-stroke setting

2. Test Specifications

2.1 Timing device rev/min

Test Intructions and Test Equipment

VDT-WPP 161/4 B Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	600	2,6-3,6 mm		
1.2 Supply pump pressure	600	4,1-4,6 kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	62,5-63,5 cm ³ /1000 strokes	;	2,5
Full-load delivery with charge-air		cm ³ /1000 strokes	3	
pressure 1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
15 Start 196 bar	100	mind.100,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1100	31,0-39,0 cm ³ /1000 strokes	,	

400

Checking values in brackets

200-330(170-360)

	mm	Start	1,3-2,	3(1,0-2,6) (2	,3-3,9)5,2-5,9(4,9-6,2)
2.2 Supply pump	rev/min	200		600	1050
	kp/cm²	1,7-2,2(1,5	5-2,0)	(3,9-4,8)	6,1-6,6(5,9-6,8)
Overflow delivery	rev/min	500			1050
,	cm ³ /10 s	55-100(40-1	10)		55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1150-1200 (1130-1220) 1100 1050-1070 1020 800 500		(30,0-40,0) (62,5-67,5) (62,0-64,0) (56,5-61,5)	
idie stop	Full	400-450 (380-470) 350 100	0 mind.100,0	(11,0-19,0)	
End stop		220-300			

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 2,4 mm Dimension V = 24,6 mm

WPP 001/4 IHC 3,9a 2

3. Edition

2. Test Specifications

rev/min

2.1 Timing device

VA 4/100 H 1100 CR 12-3 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes

3.76

company engine.

IHC D 239

1000-1100

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches**

Test Intructions and Test Equipment

800

VDT-WPP 161/4 B

Pre-stroke setting

Testoil-ISO 4113

0,5 mm $\pm 0,04$

Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	3,2-4,0	mm		
1.2 Supply pump pressure	800	4,8-5,3	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	68,5-69,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /1000 strokes	† {	
pressure 1.4 Idle speed regulation	400	12,0-18,0	cm ³ /1000 strokes		3,0
1.5 Start	100	mind.85,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1150	33,5-41,5	cm ³ /1000 strokes		

500

Checking values in brackets

280-430(250-460)

	mm	Start	0,8-1,8	(0,5-2,1) (2,9	9-4,3) 4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200			800 1100
	kp/cm²	1,8-2,3(1,6	-2,5)	(4,6	-5,5)6,0-6,5(5,8-6,7)
Overflow delivery	rev/min	500			1100
	cm ³ /10 s	55-100(40-1	10)	and the second s	55-100(40-110
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1180-1250 (1160-1270) 1150 1100-1120 1050 800 500		(32,5-42,5) (71,0-76,0) (68,0-70,0) (64,0-69,0)	
	Stop	1100	0		
Idle stop	Full	430-500 (410-520) 400	0	(11,0-19,0)	

End stop

Start

100

220-300

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mind.85,0

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $Y = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 1,7 mm Dimension V = 24,6 mm

WPP 001/4 IHC 3,9b 1

2. Edition

VA 4/100 H 1200 CR 12-1 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) CR 12-9

supersedes IHC company D 239

engine

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for

Pre-stroke setting

0,5_{mm} ± 0,04 **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

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			PI	e-setting see revers	se side
1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	3,2-4,2	mm		
1.2 Supply pump pressure	800	5,3-5,8	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	69,5-70,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	350	17,0-23,0	cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	26,0-34,0	cm ³ /1000 strokes		

2.1 Timing device	rev/min	200-350(170-380) 500	800	1000-1150	
	mm	Start	1,3-2,3(1,0-2,6)	(2,9-4,5)	4,7-5,4(4,4-5,7)	
2.2 Supply pump	rev/min	200		800	1200	
kp/cm²		2,2-2,7(2,0-2,9) (5	(5,1-6,0) 6,7-7,2(6,5-7,4)		
Overflow delivery	rev/min	500			1200	
Overnow deniery	cm ³ /10 s	55-100(40-110)	55-100(40-110)			

23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1270-1320 (1250-1340) 1250 1200-1220 1180 800 500	Ī	(25,0-35,0) (70,0-75,0) (69,0-71,0) (64,0-69,0)	
Idle stop	Full	430-500 (410-520) 350	0	(16,0-24,0)	·
End stop	Start	100 220-300	mind. 90,0		

1111

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $a = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $v = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Remension IV 후 2,0 mm Cimension y 후 24,6 mm

WPP 001/4 IHC 2,4 e

2. Edition

VA 3/100 H 1100 CR 9-5

2. Test Specifications

supersedes

company

8.77 IHC

engine

D 155/503

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

Testoil-ISO 4113

 $0.3^{mm} \pm 0.02(\pm 0.04)$

Plunger lift of 1,0 mm related to outlet "A"

1.	Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel	700	3,6-4,6	mm		
1.2	Supply pump pressure	700	4,4-4,9	kp/cm ^r		
1.3	Full-load delivery without charge-air pressure	800	61,0-62,0	cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4	Idle speed regulation	350	12,0-18,0	cm 1/1000 strokes		3,0
1 5	Start 196 bar	100	mind.80,0	cm ³ /1000 strokes		
16	Full-load speed regulation	1150	36,0-44,0	cm ¹ /1000 strokes		

Checking values in brackets

2.1 Timing device	rev/min mm	160-300(130 Start	-330) 4 1,6-2,6(1	7 1,3-2,9) (3,3-	00 800-950 4,9) 4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min kp/cm²	200 1,7-2,3(1,5	-2,5)	7 (4,2-5	00 1100 ,1) 5,6-6,1(5,4-6,3)
Overflow delivery	rev/min cm³/10 s	500 55-100(40-1	10)		1100 55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1180-1230 (1160-1250) 1150 1050 800 500		(35,0-45,0) (59,5-64,5) (60,5-62,5) (50,5-55,5)	
	Stop	1100	0		
idle stop	Full	450-530 (430-550) 350	0	(11,0-19,0)	
Fnd stop	Start	100 220-320	mind.80,0	•	·

BOSCH

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $= 60 + 8^{\circ}$	Pump Dimension IV = 6,50 mm Dimension V = 25,00 mm

WPP 001/4 IHC 2,4c 2 3. Edition

En

VA 3/100 H 1100 CR 9-3 CR 9-4

2. Test Specifications

Testoil-ISO 4113

supersedes 3.76 company

IHC engine

D 155 X 36 D 155-E 453

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

Pre-stroke setting $0.3^{mm} \pm 0.04$ Plunger lift of 1,0 mm related to outlet "A"

1. Setting	gs	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device	e travel	700	3,2-4,0	mm		
1.2 Supply pump	pressure	700	4,3-4,8	kp/cm ²		
1 3 Full-load deliv		800	63,0-64,0	cm ³ /1000 strokes		2,5
Full-load deliv	very with charge-air			cm ³ /1000 strokes		1
1 4 Idle speed re	gulation	300	17,0-23,0	crn ³ /1000 strokes		3 , û
1 5 Start	196 bar	100	mind.90,0	cm ³ /1000 strokes		
1 6 Full-load spec	ed regulation	1150	31,0-39,0	cm ³ /1000 strokes		

Checking values in brackets

Z. Test op	efilita (10	Checking value	es in brackers			
2 1 Timing device	rey/min	200-350(170	-380) 40	10	700	900-1050
	mm	Start	0,9-1,9(0,6-2,2)	(2,9-4,3)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200			700	1100
	kp/cm ²	1,8-2,3(1,6	-2,5)		(4,1-5,0)	5,8-6,3(5,6-6,5)
Overflow delivery	rev/min	500				1100
	cm ³ /10 s	55-100(40-1	10)			55-100(40-110)
23 Fuel deliveries			4			
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-ai	r pressure kp3cm²
End stop	Full	1200-1250 (1180-1270) 1150 1100-1130 1080 800 500	0 Start 65,5-68,5 55,0-58,0	(62,5-64,	,5) ,5)	
	Stop	1100	0			
Idle stop	Full	430-500 (410-520) 300	0	(16,0-24	,0)	
	Ştart	100	mind.90,0			
End stop		220-300				

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 6,5 mm Dimension V = 25,0 mm

WPP 001/4 IHC 5,8 f 5. Edition

0 460 306 164

VA 6/100 H 1250 CR 82 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes 5.77 IHC company D 358 engine

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-stroke setting

estoil-ISO 4113

 $0.3 \text{ mm} \pm 0.04$

Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	3,1-4,1	mm .		
1.2 Supply pump pressure	800	5,3-5,8	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	73,0-74,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		•
1.4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
1 5 Start	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1330	31,0-39,0	cm ³ /1000 strokes		

2. Test Spe	cificatio				
2.1 Timing device	rev/min	250-400(220-4	430) 4	50 800	1100-1250
	mm	Start	0,8-1,8(0	,5-2,1) (2,8-4	4,4) 5,1-5,8(4,8-6,1)
2.2 Supply pump	rev/min	200		800	1250
* ' ' ' 1	kp/cm²	2,0-2,5(1,8-	2,7)	(5,1-6,0	0) 6,9-7,4(6,7-7,6)
Overflow delivery	rev/min	500			1250
- 1	cm ³ /10 s	55-100(40-110	0)		55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1380-1450 (1360-1470) 1330 1260-1280 1220 800 500		(30,0-40,0) (75,5-80,5) (72,5-74,5) (66,5-71,5)	
	Stop	1250	0		
Idle stop	Full	480-550 (460-570) 350	0	(11,0-19,0)	·
End stop	Start	100 220-300	mind. 90,0	•	

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 55 \pm 8^{\circ}$ $Y = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 2,6 mm Dimension V = 24,6 mm

WPP 001/4 IHC 4,4 b

3. Edition

0 460 314 029

VA 4/110 H 1250 CR 93 Nozzle-and-holder assembly .1 688 901 020 (172 + 3 bar) supersedes 4.79

company IHC

D 268 engine.

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

2. Test Specifications Checking values in brackets

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

Festoil-ISO 4113

 $0.5 \text{ mm} \pm 0.02(\pm 0.04)$

1.	Settings		rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel	•	1000	6,0-7,0	mm ,		
1.2	Supply pump pressure		1000	5,5-6,0	kp/c m²		i
1.3	Full-load delivery with charge-air pressure	out	800	73,5-74,5	cm ³ /1000 strokes		2,5
	Full-load delivery with pressure	charge-air			cm ³ /1000 strokes		
1.4	Idle speed regulation		350	17,0-23,0	cm ³ /1000 strokes		3,0
15	Start 1	96 bar	100	mind.100,0	cm ³ /1000 strokes		
1.6	Full-load speed regula	tion	1350	26,0-34,0	cm ³ /1000 strokes		

2.1 Timing device	rev/min	330-430(300	-460)	500	1000	1030-1180	
	mm ,	Start	0,8-1	,8(0,5-2,1)	(5,7-7,3)	7,0-7,7(6,7-8,0)	
2.2 Supply pump	rev/min	· 200	1		1000	1250	
	kp/cm ²	1,5-2,0(1,3	3-2,2)		(5,3-6,2)	6,2-6,7(6,0-6,9)	
Overflow delivery	rey/min			500		1250	
granding denivery	cm ³ /10 s		55-100	0(40-110)	55-100(40-1		
2.3 Fuel deliveries							
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	.	Charge-aii	r pressure kp/cm²	
End stop	Full	1410-1460 (1390-1480) 1350 1260-1280 1200 800 500		(25,0-35, (68,0-73, (73,0-75, (74,5-79,	0)		
	Stop	1250	0				
idie stop	Full	450-500 (430-520) 350	0	(16,0-24,	0)		
End stop	Start	100 220-320	mind.100,0	_			

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $Y = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 2,60 mm Dimension V = 24,65 mm

0.5 mm

Plunger lift of 1,0 mm related to outlet "A"

WPP 001/4 IHC 5,8 v 1. Edition

VA 4/100 H 1250 CR 410 0 460 304 247

Pre-stroke setting

supersedes

IHC company

D 239 engine

Nozzle-and-holder assembly

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

1 688 901 020 (172 + 3 bar)

1.	Settings	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm ³
1.1	Timing device travel	1000	5,9-6,7	mm		
12	Supply pump pressure	1000	5,7-6,2	kp/cm²		
1.3	Full-load delivery without charge-air pressure	800	79,0-80,0	cm ³ /1000 strokes	:	2,5
	Fuli-load delivery with charge-air pressure			cm ³ /1000 strokes		1
1.4	Idle speed regulation	400	17,0-23,0	cm ³ /1000 strokes		3,0
15	Start	100	mind.90,0	cm ³ /1000 strokes		<u> </u>
1.6	Full-load speed regulation	1300	43,5-51,5	cm 1/1000 strokes		

2. Test Sp	ecificatio	NS Checking value	es in brackets		
	rev/min		600	1000	1250
	mm	Start 1,	4-2,4(1,1-2,	,7) (5,6-7,0)	6,9-7,6(6,6-7,9)
22 Supply pump	rev/min	200		1000	1250
	kp/cm²	1,7-2,2(1,5	-2,4)	(5,5-6,4)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min	500			1250
	cm³/10 s	55-100(40-1	10)		55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1340-1390 (1320-1410) 1300 1200 eng	0 75,5-78,5 78,0-81,0	(42,5-52,5) (74,5-79,5) (78,5-80,5) (77.0-82,0)	·
	Stop	1250	0		
idle stop	Full	480-530 (460-550) 400	0	(16,0-24,0)	
	Start	100	mind.90,0		,
End stop		260-360		•	

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = - mm Dimension V = 24,65 mm

WPP 001/4 IHC 5,8 q 5

1. Edition

VA 3/10 H 1200 CR 409 CR 409 P supersedes

IHC company

D 159/53 HP

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,3 mm Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm ⁻	Difference in delivery cm ³
1.1 Timing device travel	1000	4,8-5,8	mm		
1.2 Supply pump pressure	1000	5,6-6,1	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	70,0-71,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes	[
1.4 Idle speed regulation	375	12,0-18,0	cm ³ /1000 strokes	 	3,0
1.5 Start	100	mind.90,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	26,0-34,0	cm³/1000 strokes		

2. Test Sp	ecificatio	NS Checking value	es in brackets		
2.1 Timing device	rev/min		600	1000	1200
	mm	Start 1,	0-2,0(0,7-2,	3) (4,5-6,1)	6,1-6,8(5,8-7,1)
2.2 Supply pump	rev/min	200		1000	1200
	kp/cm²	1,7-2,2(1,5	-2,4)	(5,4-6,3)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-1	10)		55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1340-1400 (1320-1420) 1300 1180 800 500	72,0-75,0	(25,0-35,0) (71,0-76,0) (69,5-71,5) (63,5-68,5)	
	Stop	1200	0		
idie stop	Full	420-470 (400-490) 375	0	(11,0-19,0)	
End stop	Start	100 260-360	mind.90,0		·

BOSCH

Angle to the stop-plate	Pre-setting dimensions		
$\rho_{\alpha}^{\text{Pump}} = 25 \pm 4^{\circ}$ $\rho_{\beta} = 50 \pm 8^{\circ}$ $\rho_{\gamma} = 30 - 8^{\circ}$ $\rho_{\delta} = 60 + 8^{\circ}$	Pump Dimension IV = - mm Dimension V = 24,65 mm		

D24

WPP 001/4 IHC 3,9 a 1

5. Edition

VA 4/100 H 1100 CR 12-2

supersedes 6.78

IHC company D 239 engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches

910-1020

Test Intructions and Test Equipment

VDT-WPP 161/4 B

700

Pre-setting see reverse side

Pre-stroke setting

2.1 Timing device | rev/min

0,5 mm $\pm 0,02 (\pm 0,04)$

Plunger lift of 1,0 mm related to outlet "A"

2. Test Specifications Checking values in brackets

180-320(150-350)

1. Settings	rev/min	Settings	Charge-air press	Difference in delivery cm ³
1 1 Timing device travel	700	2,9-3,9 mm		
1.2 Supply pump pressure	700	2,6-3,1 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	62,5-63,5 cm ³ /1000 stroke	s	2,5
Full-load delivery with charge-air pressure		cm ³ /1000 stroke	s	
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 stroke	s	3,0
1.5 Start 196 bar	100	mind.100,0 cm ³ /1000 stroke	s	
1 6 Full-load speed regulation	1150	31,0-39,0 cm 1000 stroke	s	

400

2.1 Illiming device	TEALITIE	100-320(130-	350) 400	70	310-1020
	mm	Start	0,9-1,9(0	,6-2,2) (2,6-	4,2) 4,7-5,4(4,4-5,7)
2 2 Supply pump	rev/min	200		70	1100
	kp/cm ⁻	1,9-2,4(1,7-	2,6)	(2,4-3	3,3) 6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500			1100
•	cm ³ /10 s	55-100(40-11	0)		55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1200-1250 (1180-1270) 1150	0	(30,0-40,0)	
		1100-1130	Start	(30,0-40,0)	
		1080 800	61,5-64,5	(60,5-65,5)	
		500	56,0-59,0	(62,0-63,0) (55,0-60,0)	
:	Stop	1100	0		
idle stop	Full	400-460 (380-480)	0		
		350		(11,0-19,0)	•
s	Start	100	mind.100,0		·
End stop		220-300		•	

Angle to the stop-plate	Pre-setting dimensions		
Pump $a = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 2,00 mm Dimension V = 24,65 mm		

46

WPP 001/4 IHC 3,5 a 1

1. Edition

VA 4/100 H 1050 BR 8

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes

4.69 IHC

company engine.

D 206

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

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Pre-stroke setting

Festoil-ISO 4113

0,5 _{mm}

 \pm 0,02 (\pm 0,04)

All lest specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	600	7,5-8,5	mm		
1.2 Supply pump pressure	600	4,7-5,2	kp/cm²	 	
1.3 Full-load delivery without	800	64,0-65,0	cm ³ /1000 strokes		2,5
charge-air pressure Full-load delivery with charge-air			cm ³ /1000 strokes	<u> </u>	
pressure 1.4 Idle speed regulation	350	17,0-23,0	cm ³ /1000 strokes		3,0
1.5 Start	100	mind.85,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1130	26,0-34,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	s in brackets	600	040 4000
2.1 Timing device	rev/min	200-370(170-	400)		840-1000
	mm	Start		(7,2-8,8)	13,7-14,4 (13,4-14,7)
aa Cusslususs	rev/min	100		600	1050
2.2 Supply pump	kp/cm²	1,6-2,1 (1,4	-2,3)	(4,5-5,4)	6,7-7,2(6,5-7,4)
	N.D. C.	500		1000	1050
Overflow delivery	rev/min	mind.27) 55-125(40-125)
	cm ³ /10 s	101110.27			7 33 123(40 123)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	S	Charge-air pressure kp/cm ²
End stop	Full	1150-1200 (1130-1220) 1130 1030 800 500	0 67,0-70,0 57,0-60,0	(25,0~35,0) (66,0~71,0) (63,5~65,5) (56,0~61,0)))
	Stop	1050	0		
idle stop	Full	390-440 (370-460)	0		
		350		(16,0-24,0))
	Start	100	mind.85,0		
End stop	Start	500	35,0-52,0	(34,0-53,0)
				(0.,0.00,0	<u>′1 </u>

Angle to t	he stop-plate	Pre-setting dimensions		
Pump α β γ ὸ	= 25 ± 4° = 35 ± 8° = 30 - 8° = 60 ± 8°	Pump Dimension IV = 2,5 mm Dimension V = - mm Dimension I = Dimension II = According to the wear-parts list Dimension III = - mm Dimension IV = 2,5 mm (s.a.BMP)		

WPP 001/4 FIA 2,3 a

3. Edition

VA 3/110 H 1200 BL 134 Q 460 313 005

supersedes 7.71 Fiat 853

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,5 $_{mm}$ Plunger lift of 1,0 mm related to outlet "A"

1. Settings		rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm ³
1.1 Timing device trav	el	700	5,8-6,8	mm		
1.2 Supply pump pres	sure	700	4,2-4,7	kp/cm²		
1.3 Full-load delivery	vithout	800	59,0-60,0	cm ³ /1000 strokes		2,5
charge-air pressur Full-load delivery				cm ³ /1000 strokes		
pressure 1.4 Idle speed regulat	ion	300	17,0-23,0	cm ³ /1000 strokes		3,0
15 Start		100	mind.130,0	cm ³ /1000 strokes		
1.6 Full-load speed re	gulation	1300	26,0-34,0	cm ³ /1000 strokes		

2. Test Spe	cificatio	NS Checking value	s in brackets		
2.1 Timing device	rev/min	170-320 (140-	-350)	700	900-1040
	mm	Start		(5,5-7,1)	8,7-9,4(8,4-9,7)
2.2 Supply pump	rev/min	100		700	1200
	kp/cm²	0,8-1,3(0,6-	1,5)	(4,0-4,9)	6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500			1200
	cm³/10 s	mind.25			55-125(40-140)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	5	Charge air pressure kp/cm²
End stop	Full	1330-1380 (1310-1400) 1300 1180 800 500	0 56,5-59,5 52,0-56,0	(25,0-35,0) (55,5-60,5) (58,5-60,5) (51,0-57,0)	
	Stop	1200	0		
idle stop	Full	330-400 (310-420) 300	0	(16,0-24,0)	
	Start	100	mind.130,0	ס	
End stop		130-230		•	·

Testoil-ISO 4113

Festoil-ISO 4113

Test Specifications Distributor-Type **Fuel Injection Pump**

0,3 mm

Plunger lift of 1,0 mm related to outlet "B"

WPP 001/4 STE 2,0 a

3. Edition

En

VA 2/100 H 1100 BR 142 0 460 302 002

Pre-stroke setting

12.71 supersedes

company

Steyr

engine

WD 210

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

Charge-air press Difference in delivery 1. Settings cm³ kp/cm⁴ 700 3,8-4,8 1.1 Timing device travel 700 4,2-4,9 kp/cm² 1.2 Supply pump pressure 59,5-60,5 900 2,5 cm³/1000 strokes 1.3 Full-load delivery without charge-air pressure cm³/1000 strokes Full-load delivery with charge-air 250 13,0-19,0 3,0 cm³/1000 strokes 1.4 Idle speed regulation mind.80,0 100 cm3/1000 strokes 1.5 Start 19,0-27,0 1180 cm3/1000 strokes 1 6 Full-load speed regulation

2. Test Sp	ecificatio	NS Checking value	es in brackets		
2.1 Timing device	rev/min	420-530(390-	560)	700	960-1060
	mm	Start .		(3,5-5,1)	8,7-9,4(8,4-9,7)
2.2 Supply pump	rev/min	100		700	1000
2.2 Supply pamp	kp/cm ²	1,0-1,5(0,8-	1,7)	(4,0-5,1)	5,8-6,3(5,6-6,5)
		500			1000
Overflow delivery	rev/min cm ³ /10 s	mind. 25			55-125(40-140)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1220-1280 (1200-1300) 1180 1050 900 500	0 57,5-60,5 54,0-57,0	(18 - 28) (56,5-61,5) (59,0-61,0) (53,0-58,0)	
	Stop	1100	0		
Idle stop	Full	300-360 (280-380) 250	0	(12,0-20,0)	
•	Start	100	mind. 80,0		·
End stop		110-210		•	

Angle to the stop plate	Pre-setting dimensions
Pump _α = 25 ± 4° β = 35 ± 8° γ = 30 - 8° δ = 60 + 8°	Pump Dimension IV = 2,0 mm Dimension V = - mm

WPP 001/4 FIA 2,3 a 3

1. Edition

VA 3/110 H 1100 BL 134-1 0 460 313 006

2. Test Specifications

supersedes

company

Fiat

engine

853.10

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

0,5 mm Pre-stroke setting Plunger lift of 1,0 mm related to outlet "A"

1.	Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel	700	5,3-6,3	mm		
1.2	Supply pump pressure	700	4,3-4,8	kp/cm²		
1.3	Full-load delivery without charge-air pressure	800	55,5-56,5	cm ³ /1000 strokes	1	2,5
	Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4	Idle speed regulation	300	17,0-23,0	cm ³ /1000 strokes		3,0
1.5	Start	100	mind.130,0	cm ³ /1000 strokes		
16	Full-load speed regulation	1180	42,0-48,0	cm ³ /1000 strokes		

Checking values in brackets

z. ical op		Checking value	S III UIACKEIS			
2.1 Timing device	rev/min	220-370(190-400)		700	940-1090	
	mm	Start		(5,0-6,6)	8,7-9,4(8,4-9,7)	
2.2 Supply pump	rev/min	100		700	1100	
	kp/cm ²	1,0-1,5(0,8-1,7)		(4,1-5,0)	5,9-6,4(5,7-6,6)	
Overflow delivery					1100	
•	cm ³ /10 s	mind. 25		55-125(40-140)		
23 Fuel deliveries	<u> </u>		_			
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²	
End stop	Full	1230-1260 (1210-1280) 1180 1100 800 500	0 42,0-48,0 53,5-56,5 50,0-53,0	(41;0-49,0) (52,5-57,5) (55,0-57,0) (49,0-54,0)		
	Stop	1100	0			
idle stop	Full	330-400 (310-420) 300	0	(16,0-24,0)		
•	Start	100	mind.130,0			
End stop		130-230		•	·	
	_					

Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 2,0 mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 9,0 mm Dimension III = 35,3 mm		

WPP 001/4 FIA 2,3 a 2

2. Edition

En

VA 3/110 H 1300 BL 134-2 0 460 313 007 supersedes 7.77
company Fiat 853

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,7 mm

Festoil-ISO 4113

Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	6,3-7,3	mm		
1.2 Supply pump pressure	800	4,4-4,9	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	60,5-61,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1 4 Idle speed regulation	300	17,0-23,0	cm ³ /1000 strokes		3,0
1.5 Start	100	mind.110,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1400	37,0-43,0	cm ³ /1000 strokes		

2. Test Sp 2.1 Timing device	ecificatio	NS Checking value	s in brackets		
2.1 Timing device	rev/min				
	1.5	360-500(330-530)		800	1100-1250
	mm	Start		(6,0-7,6)	13,7-14,4(13,4-14,7)
2.2 Supply pump	rev/min	100		800	1300
z.z. Supply pump	kp/cm ²	0,6-1,1(0,4	-1,3)	(4,2-5,1)	6,7-7,2(6,5-7,4)
		500		1000	
Overflow delivery	rev/min cm ³ /10 s	mind.25		55-125(40-140)	
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1450-1510 (1430-1530) 1400 1250 800 500	}	(36,0-44,0) (55,0-60,0) (60,0-62,0) (50,5-55,5)	
	Stop	1300	0		
Idle stop	Full .	380-430 (360-450) 300	0	(16,0-24,0)	
End stop	Start	100 110-230	mind.110,0		

E11

BOSCH

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $v = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 2,5 mm (s.a.BMP 161/32) Dimension V = - mm		

WPP 001/4 FIA 2,3 b

cm3/1000 strokes

2. Edition

VA 3/110 H 1100 BL 134-3 0 460 313 011

1.6 Full-toad speed regulation

supersedes

5.72

company engine

Fiat 853-10

Nozzle-and-holder assembly

1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

0,7 mm Pre-stroke setting Plunger lift of 1,0 mm related to outlet "A"

1100

Charge air press | Difference in delivery 1. Setting® kp/cm mm 1.1 Timing device travel 800 6,3-7,3 kp/cm³ 12 Supply pump pressure 800 4,5-5,0 cm3/1000 strokes 1.3 Full-load delivery without 58,0-59,0 800 2,5 charge-air pressure cm³/1000 strokes Full-load delivery with charge-air cm3/1000 strokes 1.4 Idle speed regulation 300 17,0-23,0 3.0 cm³/1000 strokes 100 mind.130,0

28,5-36,5

2. Test Sp	ecificatio	NS Checking value	s in brackets		
2.1 Timing device	rev/min mm	370-520(340	-550)	800	950-1100
		Start		(6,0-7,6)	
2.2 Supply pump	rev/min	100		800	1100
	kp/cm ²	0,7-1,2(0,5	-1,4)	(4,3-5,2)	5,9-6,4(5,7-6,6)
Overflow delivery	rev/min	500		1000	
	cm ³ /10 s	mind. 25	mind. 25		0)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop -	Full	1280-1330 (1260-1360) 1100 1080 800 500	0 56,5-59,5 51,5-54,5	(27,5-37,5) (55,5-60,5) (57,5-59,5) (50,5-55,5)	
	Stop	1100	0		
idle stop	Full	370-420 (350-440) 300	0	(16,0-24,0)	
•		100	mind.130,0		
End stop	Start	110-250		•	•

Testoil-ISO 4113

Angle to the step-plate	Pre-setting dimensions	
Pumps $a = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $y = 30 - 3^{\circ}$ $\delta = 60 + 8^{\circ}$	Pemp Dimension IV = 0,5 mm Dimension V = - mm	

E14

En

WPP 001/4 FIA 2,3 b 2

1. Edition

VA 3/110 H 1200 BL 134-4 0 460 313 012

supersedes

company

Fiat 853

engine Nozzle-and-holder assembly

1 688 901 020 (172 + 3 bar)

Bosch Fuel Injection Pump Test Benches

and Testers

Test Intructions and Test Equipment

All test specifications are valid for

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

Plunger lift of 1.0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	7,3-8,3	mm		
1 2 Supply pump pressure	800	4,5-5,0	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	62,0-63,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	300	17,0-23,0	cm ³ /1000 strokes		3,0
1 5 Start	100	mind.130,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	31,0-39,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio	ns Checking value	s in brackets		
2.1 Timing device	rev/min	310-460(280	-490)	800	1050≂1200
	mm	Start		(7,0-8,6)	13,7-14,4(13,4-14,7)
2.2 Toply pump	rev/min	100		800	1200
	kp/cm ²	0,9-1,4(0,7	-1,6)	(4,3-5,2)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min			1000	
•	cm ³ /10 s			55-125(40-140))
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	·	Charge-air pressure kp/cm²
End stop	Full	1350-1400 (1330-1420) 1300 1200 800 500	60,0-63,0 54,0-57,0	(61,5-63,5)	
		1200	0		
idle stop	Full	370-420 (350-440)	0	/4C D 24 C	
	,	300		(16,0-24,0)	
•	Start	100	mind.130,0		
End stop		110-230	ļ	•	

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $V = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 0,5 mm Dimension V = - mm

Plunger lift of 1,0 mm related to outlet "A"

WPP 001/4 FIA 2,3 a 4

1. Edition

VA 4/110 H 1200 BL 136 0 460 314 006

supersedes

company

Fiat

engine

854

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,5

1. Settings	rev/min	Settings		Charge-air press	Difference in delivery
1 1 Timing device travel	800	6,8-7,8	mm		
1.2 Supply pump pressure	800	5,0-5,5	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	59,5-60,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4 Idle speed regulation	340	17,0-23,0	cm ³ /1000 strokes		3,0
1.5 Start	100	mind.130,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1280	27,0-35,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	s in brackets		
2.1 Timing device	rev/min	300-450(270-	-480)	800	1000-1160
	mm	Start .		(6,5-8,1)	11,7-12,4(11,4-12,7)
22 Supply cump	rev/min	100)	800	1200
	kp/cm ²	1,0-1,5(0,8-	-1,7)	(4,8-5,7)	7,0-7,5(6,8-7,7)
Overflow delivery	rev/min	500)		1200
	cm ³ /10 s	mind. 25	mind. 25		55-125(40-140)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1330-1370 (1310-1390) 1280 1180 800 500	0 55,0-58,0 58,0-61,0	(26,0-36,0 (54,0-59,0 (59,0-61,0 (57,0-62,0))))))
	Stop	1200	0		
Idle stop	Full	380-430 (360-450) 340	0	(16,0-24,0	
	Start	· ·	mind 100		''
Pud shan	Jigit	100	mind.130,	U .	·
End stop		130-230	<u> </u>		

Testoil-ISO 4113

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est
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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 33 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 1,5 mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 12,0 mm Dimension III = 33,3 mm

WPP 001/4 IHC 5,1 x

2. Edition

VA 6/100 H 1350 BR 49-1

2. Test Specifications

21 Timing device | rev/min

supersedes 10.69
company IHC
engine D 310/36

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
Test Intructions and Test Education

1080-1230

Test Intructions and Test Equipment VDT-WPP 161/4 B

VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting. 0,5 mm Plunger lift of 1,0 mm related to outlet "A"

1.	Settings	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm ³
1.1	Timing device travel	700	6,8-7,8	mm		
12	Supply pump pressure	700	5,1-5,6	kp/cm²		
1.3	Full-load delivery without charge-air pressure	1000	68,5-69,5	cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4	Idle speed regulation	350	17 - 23	cm ³ /1000 strokes		3,0
15	Start (mech.) 196 bar	100	mind.80	cm ³ /1000 strokes		
16	Full-load speed regulation	1430	46 - 54	cm ³ /1000 strokes		

700

Checking values in brackets

| 300-450 (270-480)

			•		
	mm	Start		(6,5-8,1)	13,7-14,4(13,4-14,7)
22 Supply pump	rev/min kp/cm ²	100 1,5-2,0(1,3	-2,2)	700 (4,9-5,8)	1350 7,4-7,9(7,2-8,1)
Overflow delivery	rev/min cm ³ /10 s	500 mind. 25		1000 55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1500-1550 (1480-1570) 1430 1330 1000 500	0 63 - 66 56 - 59	(68 - 70)	
	Stop	1350	0		
Idle stop	Full	480-540 (460-560) 350	0	(16 - 24)	
End stop	Start	100 mind.200	mind. 80,(0	

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions	
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $Y = 30 \pm 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 3,0 mm (s.a. BMP 161/32) Dimension V = - mm	

WPP 001/4 IHC 3,5 a 2

2. Edition

VA 4/100 H 1050 CR 8

supersedes

15.9.71

company engine

IHC D 206

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment

Pre-setting see reverse side

VDT-WPP 161/4 B

Pre-stroke setting

Festoil-ISO 4113

0.5 mm

 $\pm 0,02(\pm 0,04)$

Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm	Difference in delivery cm ³
1.1 Timing device travel 1.2 Supply pump pressure	800 800	3,2-4,0 5,3-5,8	mm kp/cm²		
1.3 Full-load delivery without charge-air pressure Full-load delivery with charge-air pressure	800	64,5-65,5	cm ³ /1000 strokes		2,5
1 4 Idle speed regulation	350	17,0-23,0	cm ³ /1000 strokes		3,0
1.6 Full-load speed regulation	100 1130	mind.85,0 26,0-34,0	cm ³ /1000 strokes	}	

2. Test Sp	ecificatio	ns Checking value	es in brackets		
2.1 Timing device	rev/min	200-350(170	-380)	800	900-1050
	mm	Start		(2,9-4,3)	4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	100	100		1050
	kp/cm ²	0,7-1,2(0,5	-1,4)	(5,1-6,0)	6,3-6,8(6,1-7,0)
Overflow delivery	rev/min	500			1050
·	cm ³ /10 s	55-100(40-1	10)		55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1170-1220 (1150-1240) 1130 1030 800 500	0 68,0-71,0 59,5-62,5)	(25,0-35,0) (67,0-72,0) (64,0-66,0) (58,5-63,5)	
	Stop				
Idle stop	Full	440-490 (420-510) 350	0	(16,0-24,0)	
•	Start	100	mind.85,0		
End stop		220-300		•	

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 35 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = - mm Dimension V = - mm

WPP 001/4 IHC 3,9 w

6. Edition

VA 4/100 H 1150 CR 69-4 0 460 304 229

·Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes 2.80 IHC company

D 239 engine

Setting in accordance with WPP 161/4 1 st. Supplement plunger lift 1.0 mm referenced to outlet "A".

2. Test Specifications Checking values in brackets

Pre-stroke setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment **VDT-WPP 161/4 B**

Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ²
1.1 Timing device travel	900	3,6-4,6	mm .		
1.2 Supply pump pressure	900	5,1-5,6	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	66,0-67,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-ai	r		cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
1.5 Start 196 b	ar 100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1175	46,0~54,0	cm ³ /1000 strokes		

7. 1691 3h				600 9	000	980-1130
2.1 Timing device	rev/min	330-480(300	0.0,			
	mm	Start	1,1-2,1	(0,8-2,4) $(3,$	3-4,9)4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200		9	900	1150
2.2 Supply paint	kp/cm²	1,4-1,9(1,2	-2,1)	(4,9-	·5 , 8)	6,0-6,5(5,8-6,7)
		500				1150
Overflow delivery	rev/min cm ³ /10 s	55-100(40-1	10)			55-100(40-110)
	cm-/10s	33 100(40 1	107			
2.3 Fuel deliveries						
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-	air pressure kp/cm ²
End stop	Full	1235-1285 (1215-1305) 1175 1130 800 500	0 69,0-72,0 63,0-66,0	(45,0-55,0) (68,0-73,0) (65,5-67,5) (62,0-67,0)		
idle stop	Full	430-480 (410-500) 350	0	(11,0-19,0)		
	Start	100	mind. 90,	0		
End stop		220-320				
	I		_L			

Festoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
$ \frac{Pump}{\alpha} = 25 \pm 4^{\circ} $ $ \beta = 40 \pm 8^{\circ} $ $ \gamma = 30 - 8^{\circ} $ $ \delta = 60 \pm 8^{\circ} $	Pump Dimension IV = 2,2 mm Dimension V = 24,6 mm

F.24

WPP 001/4 GUL 2,3 a 8

3. Edition

VA 3/100 H 1150 BR 105 0 460 303 041

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes

8.69 company **Güldner**

engine

3 L 79

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting 0,1 mm

2. Test Specifications

 $\pm 0,02 (\pm 0,04)$

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	5,5-6,5	mm .		
1.2 Supply pump pressure	700	4,2-4,7	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	57,0-58,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	250	11,0-17,0	cm ³ /1000 strokes		3,0
1.5 Start	100	mind.100,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1220	16,0-24,0	cm ³ /1000 strokes		

Checking values in brackets

2.1 Timing device	rev/min	330-490(300	-520)		700	1000-1130
		Start		(5,	2-6,8)	10,7-11,5(10,4-11,8)
22 Supply pump	rev/min	100			700	1150
	kp/cm ²	0,9-1,4(0,7	-1,6)	(4,	0-4,9)	5,8-6,3(5,6-6,5)
Overflow delivery	rev/min	500			1000	
	cm ³ /10 s	mind.25		55-1	25(40-140)	
2.3 Fuel deliveries						
Speed control lever	Delivery lever	rev/min	cm ³ /1000 s	trokes		Charge-air pressure kp/cm ²
End stop	Full	1230-1290 (1210-1310)	0			
		1220 1130	60 0-	63 N	(15.0-25, (59,0-64,	0)
		800			(56,5-58,	5)
		500	47,5-	50,5	(46,5-51,	5)
	Stop	1150	0			
idie stop	Full	290-340 (270-360)	0			
		250			(10,0-18,	0)
	Start	100	mind.	100		
End stop		130-230				

Angle to th	ne stop-plate	Pre-setting dimensions
Pump α β γ δ	= 25 ± 4° = 55 ± 8° = 30 - 8° = 60 + 8°	Pump Dimension IV = 1,0 mm (s.a.BMP 161/32) Dimension V = - mm Dimension I = 7,0 mm Dimension II = 11,0 mm Dimension III = 32,8 mm

WPP 001/4 IHC 3,5 c 6

1. Edition

En

VA 4/100 H 1250 CR 68 CR 68 P

0 460 304 195 0 460 304 196

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

supersedes company IHC

engine D 206

All test specifications are valid for

Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting Plunger lift	of 1,0	mm related	to outlet	"A"
1. Setting	S	rev/min	Setting]S

1. Settings	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm ³
1.1 Timing device travel	800	4,2-5,2	mm		
1.2 Supply pump pressure	800	5,1-5,6	kp/cm²	·	1
1.3 Full-load delivery without charge-air pressure	800	60,5-61,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
15 Start (196 bar)	100	min. 90,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1300	21,0-29,0	cm ³ /1000 strokes		

2. 1est 5p	ecificatio	NS Checking valu	es in brackets		
2.1 Timing device	rev/min mm	Start 180-300 1,1-2,1(0,8	400 3-2,4) (3,9-5	800 1100 5,5) 6,1-7,1(5	1150-1250 5,8-7,4) (7,0-7,7) Ende
2.2 Supply pump	rev/min kp/cm ²	200 2,1-2,6(1,9	9-2,8) (4,	800 ,9-5,8)	1250 6,8-7,3(6,6-7,5)
Overflow delivery	rev/min cm ³ /10 s				1250 55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full.	1350-1400 1300 1100 800 600	0 50,0-63,0 53,0-56,0	(20,0-30,0) (59,0-64,0) (60,0-62,0) (52,0-57,0)	
	Stop	1250	0		
idle stop	Full	390-440 350	0	(11,0-19,0)	
End stop	Start	100 220-300	min.90,0		

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $Y = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 3,0 mm Dimension V = 24,6 mm

WPP 001/4 IHC 3,9 c 1

2. Edition

En

VA 4/100 H 1250 CR 67-1 CR 67-1 P

0 460 304 193 0 460 304 194

Testoil-ISO 4113

supersedes

11.73

company

IHC

engine

D 239 TD 8 c

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B Pre-setting see reverse side

 $0.5 \text{ mm } \pm 0.02 \ (\pm 0.04)$ Pre-stroke setting Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm ³
1.1 Timing device travel	800	4,5-5,5	mm		
1.2 Supply pump pressure	800	5,2-5,7	kp/cm²		·
1.3 Full-load delivery without	800	69,5-70,5	cm ³ /1000 strokes		2,5
charge-air pressure Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
400 ham	100	min. 90,0	cm ³ /1000 strokes		
1 5 Start 196 Dar 1 6 Full-load speed regulation	1330	31,0-39,0	cm ³ /1000 strokes		,
i e	1	l .		1	1

2 1 Timing device	rev/min	Start	
	mm	200-300 400 800 1000	1100-1250
	'''''	1,1-2,1(0,8-2,4) (4,2-5,8)6,1-7,1(5,8-7,4)	(6,9-7,6) Ende
O.O. Supply purps		200 800	1250
2.2 Supply pump	rev/min	2,1-2,6(1,9-2,8) (5,0-5,9)	7,0-7,5(6,8-7,7)
	kp/cm ²	2,1 2,0(1,0 2,0) (0,0 0,0)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Overflow delivery	rev/min		1250
	cm ³ /10 s		55-100(40-110)

23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1370-1420 1330 1250 800 500		(30,0-40,0) (65,0-70,0) (69,0-71.0) (70,0-75,0)	
	Stop	1250	0		
Idle stop	Full	400-450 350	0	(11,0-19,0)	
End stop	Start	100 220-300	min.90,0		

Angle to the stop-plate	Pre-setting dimensions
$ \begin{array}{lll} Pump & = 25 \pm 4^{\circ} \\ \alpha & = 40 \pm 8^{\circ} \\ \gamma & = 30 - 8^{\circ} \\ \delta & = 60 \pm 3^{\circ} \end{array} $	Pump Dimension IV = 1,8 mm Dimension V = 24,6 mm

WPP 001/4 IHC 3,5 k

2. Edition

2. Test Specifications

rev/min

2.1 Timing device

VA 4/100 H 1200 CR 12-14 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes company.

engine

800

1,3-2,3(1,0-2,6)(2,9-4,5) 4,7-5,4(4,4-5,7)

3,76

IHC D 239

1000-1150

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting

0,5 mm

 ± 0.04

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

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1.	Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel	800	3,2-4,2	mm .		
1.2	Supply pump pressure	800	5,3-5,8	kp/cm ²		
	Full-load delivery without charge-air pressure	800	67,5-68,5	cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
	idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes	İ	3,0
1.5	start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6	Full-load speed regulation	1280	31,0-39,0	cm ³ /1000 strokes		

500

Checking values in brackets 200-350(170-380)

Start

100

220-300

2.2 Supply pump	rev/min .	200		8	300	1200
	kp/cm ²	2,2-2,7(2,0-2,9)		(5,1-6,0) 6,7-7,2(6,5-7,4)		,2(6,5-7,4)
Overflow delivery	rev/min	500				1200
	cm ³ /10 s	55-100(40-1	10)			55-100(40-110)
2.3 Fuel deliveries						
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air (pressure kp/cm ²
End stop	Full	1320-1370 (1300-1390) 1280 1230-1250 1180 800 500	0 Start 67,5-70,5 62,0-65,0	(30,0-40,0) (66,5-71,5) (67,0-69,0) (61,0-66,0)		
idie stop	Full	410-470 (390-490) 350	0	(11,0-19,0)		

End stop

Start

mind.90,0

WPP 001/4 STE 4,0 a 2

1. Edition

VA 4/1000 H 1200 BR 145-1 0 460 304 108

supersedes

company

Steyr

engine

WD 449

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches**

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke P'unger li:

1,0 mm related to outlet "A"

1.	Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel	800	4,8-5,8	mm .		
1.2	Supply pump pressure	800	4,6-5,1	kp/cm ²		
1.3	Full-load delivery without charge-air pressure	800	66,0-67,0	cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4	Idle speed regulation	250	16,0-22,0	cm ³ /1000 strokes		3,0
1.5	Start	100	mind.80,0	cm ³ /1000 strokes		
1.6	Full-load speed regulation	1280	36,0-44,0	cm ³ /1000 strokes		

2. Test Specifications Checking values in brackets									
2.1 Timing device	rev/min	400-550(370-580)	800	1050-1180					
٠	mm	Start .	(4,5-6,1)	8,7-9,4(8,4-9,7)					
2.2 Supply pump	rev/min	100	800	1200					
	kp/cm ²	1,1-1,6(0,9-1,8)	(4,4-5,3)	5,9-6,4(5,7-6,6)					
Overflow delivery	rev/min	500		1000					
2.2	cm ³ /10 s	mind. 25		55-125(40-140)					

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1350-1410 (1330-1430) 1280 1150 800 500	0 67,5-70,5 (6 (6 64,0-67,0 (6	5,5-67,5)	
	Stop	1200	0		
Idle stop	Full	320-380 (300-400) 250	0 (1	5,0-23,0)	
End stop	Start	100 110-210	mind. 80,0		

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions		
Pump $= 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump = 3,5 mm Dimension IV = - mm		

WPP 001/4 IHC 3,9 1 2. Edition

VA 4/100 H 1150 CR 69-5 0 460 304 238 (see VDT-WPP 161/4, Suppl. 1) supersedes 1.78 IHC company D 239 engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	3,6-4,6	mm		
1.2 Supply pump pressure	900	5,1-5,6	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	66,0-67,0	cm ³ /1000 strokes		2,5
Fult-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strakes	 	3,0
15 Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1175	46,0-54,0	cm ³ /1000 strokes		; ;

2. Test Sp	ecificatio	NS Checking value	es in brackets		
2.1 Timing device	rev/min	330-480(300		900	980-1130
	mm	Start	1,1-2,1(0,8-2,4)(3,3-	-4,9) 4,7-5,4(4,4-5,7)
2.2 Supply pump	rev/min	200		900	1150
	kp/cm ²	1,4-1,9(1,2	-2,1)	(4.9-5.8)	6,0-6,5(5,8-6,7)
Overflow delivery	rev/min	500		(1)= 0,0,	1150
avollion delivery	cm ³ /10 s	55-100(40-1	10)		55-100(40-110)
2.3 Fuel deliveries				······································	
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1235-1285 (1215-1305) 1175 1130 800 500	1	(45,0-55,0) (68,0-73,0) (65,5-67,5) (62,0-67,0)	
	Stop	1150	0		
Idle stop	Full	430-480 (410-500) 350	0	(11,0-19,0)	·
	Start	100	mind. 90,0		
End stop		220-320		•	

Angle to the stop-plate	Pre-setting dimensions		
Pump $a = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 2,2 mm Dimension V = 24,6 mm		

WPP 001/4 DEE 5,0 a 2. Edition

0 460 316 010

VA 6/110 H 1100 BR 154 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes company

6.70 John Deere 643

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

Setting of the pointer at a stroke of 2,1 mm in relation to outlet "F" $\,$ 0,4 mm

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	8,7-9,7 mm		
1.2 Supply pump pressure	800	5,3-5,8 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	67,0-68,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure		cm ³ /1000 strokes		
1.4 Idle speed regulation	350	16,0-22,0 cm ³ /1000 strokes	ŀ	3,0
1.5 Start	100	mind.130,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1150	26,0-34,0 cm ³ /1000 strokes		

2. Test Sp	ecificatio l rev/min	NS Checking value 230-380 (200-	es in brackets 410)	800		900-1030
-	mm	Start		(8,4-10,0)	11	,7-12,4(11,4-12,7)
2.2 Supply pump Overflow delivery	rev/min kp/cm² rev/min	100 1,0-1,5(0,8- 500	1,7)	800 (5,1-6,0)	6	1100 ,7-7,2(6,5-7,4) 1000
	cm ³ /10 s	mind. 25				55-125(40-140)
2.3 Fuel deliveries						
Speed control lever	Delivery lever	rev/min	cm ³ /1000 stroi	kes		Charge-air pressure kp/cm ³
End stop	Full	1170-1220 (1150-1240) 1150 1050 800 500	0 64,5-66, 56,0-59,	(25,0-3 5 (63,5-6 (66,5-6 0 (55,0-6	35,0) 57,5) 58,5) 50,0)	
	Stop	1100	0			
idle stop	Full	400-450 (380-470) 350	0	(15,0-2	23,0)	
End stop	Start	100 120-240	mind.130	,0		·

Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 35 \pm 8^{\circ}$ $Y = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV= 1,5 mm Dimension V≈ - mm		

WPP 001/4 DEE 3,6 a

3. Edition

VA 4/110 H 1250 BR 147 0 460 314 008

0,5

Pre-stroke setting

supersedes

engine

company

John Deere 219 D 26 Z

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

7.71

Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

Plunger	lift of	1,82 mm	related	to outlet	"D" = 01
4 6-4			Language	1 Catterin	

1.	Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel	800	5,8-6,8 mm		
12	Supply pump pressure	800	4,2-4,7 kp/cm²		
1.3	Full-load delivery without charge-air pressure	900	69,5-72,5 cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure		cm ³ /1000 strokes		
1.4	idle speed regulation	400	17,0-23,0 cm ³ /1000 strakes	!	3,0
1.5	Start	100	mind.90,0 cm ³ /1000 strokes		
1.6	Full-load speed regulation	1290	46,0-54,0 cm ³ /1000 strokes		

2. Test Sp	ecificati	Ons Checking values in brackets		
2.1 Timing device	rev/min	330-48)(300-510)	800	1090-1220
	mm	Start	(5,5-7,1)	11,7-12,4(11,4-12,7)
2.2 Supply pump	rev/min	100	800	1250
	kp/cm ²	0,8-1,3(0,6-1,5)	(4,0-4,9)	6,1-6,6(5,9-6,8)
Overflow delivery	rev/min	500		1000
	cm ³ /10 s	mind. 25		55-1250(40-140)

2.3	Fuel	deliveries
-----	------	------------

2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1350-1410 (1330-1430) 1290 1200 900 500	0 (45,0-55,0) 72,5-73,5 (72,0-74,0) (69,0-73,0) 53,0-57,0 (52,0-58,0)		
	Stop	1250	0		•
ldie stop	Full	500-550 (480-570) 400	0	(16,0-24,0)	
End stop	Start	100 200-300	mind. 90,0		

[estoil-ISO 4113]

Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 50 + 8^{\circ}$	Pump Dimension IV= 0,5 MM Dimension V= - MM		

WPP 001/4 DEE 2,5 g

2. Edition

0 460 303 121

VA 3/100 H 1250 BR 26-3 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes company

3.72 John Deere 3.164 DL 01

Setting of pointer with plunger lift 1.72 mm referenced to outlet "A" in line with TDC position of corresponding engine cylinder

engine.

Pre-stroke setting

Festoil-ISO 4113

0.3mm $\pm 0.02 (\pm 0.04)$

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers **Test Intructions and Test Equipment VDT-WPP 161/4 B**

Pre-setting see reverse side

					o detailing societies	
1.	Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel	800	7,9-8,9	mm .		
1.2	Supply pump pressure	800	4,4-4,9	kp/cm²		
1.3	Full-load delivery without charge-air pressure	1150	00,0 04,0	cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4	Idle speed regulation	350	12,0-18,0	cm ² /1000 strokes		3,0
1.5	Start			cm ³ /1000 strokes		
1.6	Full-load speed regulation	1250	26,0-34,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	s in brackets		
2.1 Timing device	rev/min	150-300(120	0-330)	800	1000-1150
	mm	Start		(7,6-9,2)	11,7-12,4(11,4-12,7)
2.2 Supply pump	rev/min	100	100		1250
	kp/cm²	1,1-1,6(0,	9-1,8)	(4,2-5,1)	6,4-6,9(6,2-7,1)
Overflow delivery	rev/min	500		1000	
•	cm ³ /10 s	mind. 25		55-125 (40-	140)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 stroke	s	Charge-air pressure kp/cm ³
End stop	Full	1280-1380 (1260-1400) 1250 1150 800 500 100	0 56,5-59,5 51,0-54,0 mind.38,0	(25,0-35,0 (62,5-64,5 (55,5-60,5 (50,0-55,0)
	Stop	1250	0		
Idle stop	Full	450-500 (430-520)	0	/44 0 40 0	
		350		(11,0-19,0))
	Start				
End stop					

Angle to the stop-plate	Pre-setting dimensions
Pump $a = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $Y = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV 2,5 mm Dimension V= - mm

WPP 001/4 DEE 3,3 b

3. Edition

VA 4/100 H 1200 BR 30

Nozzle-and-holder assembly 1.688 901 020 (172 + 3 bar)

supersedes

12.68 John Deere

company engine.

Plunger lift 1.72 mm referenced to outlet "D" in line with engine TDC position.

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

X 22

Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

Festoil-ISO 4113

0,3 mm

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	5,8-6,8 mm		
1.2 Supply pump pressure	700	4,1-4,6 kp/cm ²		
1.3 Full-load delivery without	1100	50,5-51,5 cm ³ /1000 stro	kes	2,5
charge-air pressure Full-load delivery with charge-air		cm ³ /1000 stro	kes	
pressure 1.4 Idle speed regulation	400	9,0-15,0 cm ³ /1000 stro	kes	3,0
1.5 Start		cm ³ /1000 stro	kes	
1.6 Full-load speed regulation	1270	26,0-34,0 cm3/1000 stro	okes	

2.1 Timing device	rev/min	170-330(140-	360)	700	1060-1220
	mm	Start		(5,7-7,1)	11,7-12,4(11,4-12,7)
2.2 Supply pump	rev/min	100		700	1200
	kp/cm²	1,2-1,7(1,0-	1,9)	(3,9-4,8)	6,1-6,6(5,9-6,8)
Overflow delivery	rev/min	500		1000	
	cm ³ /10 s	mind. 25		55-125(40-14	0)
2.3 Fuel deliveries		,			
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ⁵
End stop	Full	1310-1360 (1290-1380) 1360 1270 1180 1100	0 max. 5,0 47,5-50,5 mind.33,0	(25,0-35,0) (46,5~51,5) (50,0-52,0)	-
	Stop	1200	0		
ldle stop	Full	490-550 (470-570) 400	0	(8,0-16,0)	
End stop	Start				

Angle to the	stop-plate	Pre-setting dimensions		
Pump α β Y δ	= 25 ± 4° = 33 ± 8° = 30 - 8° = 60 ± 8°	Pump Dimension IV = - mm Dimension V = - mm Dimension III= 34,4mm		

WPP 001/4 DEE 3,3 d

3. Edition

VA 4/100 H 1250 BR 27

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes 6.70

company engine.

John Deere X 22

Setting of pointer with plunger lift 1.72 mm referenced to outlet "D" in line with TDC position of corresponding engine cylinder

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

Testoil-ISO 4113

0,3

2. Test Specifications

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	6,5-7,5	mm		
1.2 Supply pump pressure	500	3,2-3,7	kp/cm ²		
1.3 Full-load delivery without	1150	63,0-64,0	cm ³ /1000 strokes		2,5
charge-air pressure Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	400	9,0-15,0	cm ³ /1000 strokes		3,0
1.5 Start			cm ³ /1000 strokes		
1.6 Full-load speed regulation	1330	31,0-39,0	cm ³ /1000 strokes		

Checking values in brackets

2.1 Timing device	rev/min	170-330 (14	0-360)	800	1090-1240
	mm	Start		(6,2-7,8)	11,7-12,4(11,4-12,7)
2.2 Supply pump	rev/min	100		500	1250
	kp/cm²	1,1-1,6(0,9	-1,8)	(3,0-3,9)	6,2-6,7(6,0-6,9)
Overflow delivery	rev/min	500			
• • • • • • • • • • • • • • • • • • • •	cm ³ /10 s	mind. 25			
2.3 Fuel deliveries					•
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ⁴
End stop	Full	1370-1580 (1350-1600) 1430 1330 1230 1150 800 100	0 max. 6,0 57,5-62,5 57,5-60,5 mind. 38,0	(30,0-40,0) (56,5-63,5) (62,5-64,5) (56,5-61,5)	
Idle stop	Full	550-600 (530-620) 400	0	(8,0-16,0)	
	Start				
End stop	·				

D

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Angle to the stop-plate	Pre-setting dimensions		
Pump α = 25 ± 4° β = 35 ± 8° γ = 30 - 8° δ = 60 ± 8°	Pump Dimension IV = 2,0 mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 12,0 mm Dimension III = 33.8 mm		

WPP 001/4 DEE 2,5 f 1

1. Edition

VA 3/100 H 1150 BR 29-1 0 460 303 048

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes

company

John Deere 49 F

Plunger lift 1.72 mm referenced to outlet "A"

engine

in line with engine TDC position.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-stroke setting

Festoil-ISO 4113

0,3 mm

Pre-setting see reverse side

1.	Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ²
1.1	Timing device travel	700	6,3-7,3	mm		
1.2	Supply pump pressure	700	4,5-5,0	kp/cm²		
1.3	Full-load delivery without charge-air pressure	1000	59,5-60,5	cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air			cm ³ /1000 strokes		}
1.4	pressure Idle speed regulation	400	9,0-15,0	cm ³ /1000 strokes		3,0
1.5	Start			cm ³ /1000 strokes		
1.6	Full-load speed regulation	1250	27,0-33,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	s in brackets		
2.1 Timing device	rev/min	100-310(70-	340)	700	970-1130
	mm	Start		(6,0-7,6)	9,7-10,4(9,4-10,7)
22 Supply pump	rev/min	100		700	1150
22 022277	kp/cm²	1,5-2,0 (1,	3-2,2)	(4,3-5,2)	6,1-6,6(5,9-6,8)
Overflow delivery	rev/min	500		1000	
	cm ³ /10 s	mind. 25		55-125(40 -1	140)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 stroke	s	Charge-air pressure kp/cm ²
End stop	Full	1270-1325 (1250-1345) 1250 1130 1000 500 100	0 54,0-57,5 44,0-48,0 mind.35,0	(26,0-34,0 (53,5-58,5 (59,0-61,0 (43,0-49,0	5) 0)
	Stop	1150	0		
idle stop	Full	520-580 (500-600) 400	0	(8,0-16,0)
••	Start		-		
_ , _,					

End stop

Angle to the stop plate	Pre-setting dimensions
Pump a = $25 \pm 4^{\circ}$ B = $40 \pm 8^{\circ}$ Y = $30 - 8^{\circ}$ δ = $60 + 8^{\circ}$	Pump Dimension IV = - mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 12,0 mm Dimension III = 28,3 mm

WPP 001/4 IHC 3,9 h

2. Edition

En

VA 4/100 H 1250 CR 89-1 0 460 304 226

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

supersedes

company: IHC D 239

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting

0,5 mm

2. Test Specifications

 $\pm 0,04$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

1. Settings	sev/min	Settings		Charge-air press. kp/cm ²	Difference in delivery cm ²
1.1 Timing device travel	800	4,5-5,5	mm		
1.2 Supply pump pressure	800	5,2-5,7	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	67,5-68,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	400	8,0-14,0	cm ³ /1000 strokes		3,0
1:5 Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1320	31,0-39,0	cm ³ /1000 strokes		

Checking values in brackets

.2.1 Timing device	rev/min mm	Start 200-320(170- 1,1-2,1(0,8-	360) 40 2,4) (4,2-5	00 800 5,8)6,1-7,1(5,	1000 1100-1250 ,8-7,4)6,9-7,6(6,6-7,9)
2.2 Supply pump	rev/min	200		800	1250
	kp/cm²	2,0-2,6(1,9-	2,8)	(5,0-5,9)	7,0-7,5(6,8-7,7)
Overflow delivery	rev/min cm ³ /10 s	500 55-100(40-11	0)		1250 55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1380-1430 (1360-1450) 1320 1260-1280 1220 800 500	Start 63,5-66,5 68,5-71,5	(67,0-69,0)	
	Stop	1250	0		
Idie stop	Full	450-500 (430-520) 400	0	(7,0-15,0)	
	Start	100	mind.90,0		
End stop		220-320			

Testoil-ISO 4113

BOSCH

Angulo en la piaca de tope	Cotas para ajuste previo
Bomba $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Bornba Cota IV = 2,6 mm Cota V = 24,6 mm

WPP 001/4 IHC 3,9 h 1

1. Edition

0 460 304 218

VA 4/ 100 H 1250 CR 89 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

supersedes

engine

IHC company D 239

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-stroke setting

0,5 mm

		,	Pre-setting see reverse side		
1. Settings	rev/min	Settings		Charge-air press	Difference in delivery cm ³
1.1 Timing device travel	800	4,5-5,5	mm		·
1.2 Supply pump pressure	800	5,2-5,7	kp/cm²	:	
1.3 Full-load delivery without charge-air pressure	800	69,5-70,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /10@0 strokes		
pressure 1.4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes	<u> </u>	3,0
1.5 Start	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1330	31,0-39,0	cm ³ /1000 strokes		•

2. Test Sp	ecificatio	Checking values in brac	kets	
2.1 Timing device	rev/min	Start 200-330(170-360)	400 800	1000 1100 1050
	mm	1,1-2,1(0,8-2,4)	400 800 (4,2-5,8)6,1-7,1(1000 1100-1250 5,8-7,4)6,9-7,6(6,6-7,9)
2.2 Supply pump	rev/min	200	800	1250
	kp/cm²	21,-2,6(1,9-2,8)	(5,0-5,9)	7,0-7,5(6,8-7,7)
Overflow delivery	rev/min	500 55-100(40-110)		1250
	cm ³ /10 s	33-100(40-110)		55-100(40-110)

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40) ru	e u	GIIA	eries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1330-1420 (1310-1440) 1330	0	(30,0-40,0)	
		1280-1300	Start	(30,0-40,0)	
		1250 800	66,0-69,0	(65,0-70,0) (69,0-71,0)	
		500	71,0-74,0	(70,0-75,0)	
	Stop	1250	0		·
idle stop	Full	400-450 (380-470)	0		
		350		(11,0-19,0)	
	Start	100	mind.90,0		
End stop		220-320			

Angle to the stop-plate	Pre-setting dimensions	
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta \circ = 60 \pm 8^{\circ}$	Pump Dimension IV = 1,8 mm Dimension V = 24,6 mm	

WPP 001/4 IIIC 5,8f 1

4. Edition

VA 4/110 H 1150 CR 85

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes 12.76

company IHC engine D 246

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

Pre-stroke setting

0,4 mm $\pm 0,04$

VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press	Difference in delivery cm ²
1.1 Timing device travel 1.2 Supply pump pressure	700 700	3,6-4,6 mm 4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure Full-load delivery with charge-air pressure	800	74,5-75,5 cm ³ /1000	ŀ	2,5
1.4 Idle speed regulation 1.5 Start	370 100	12,0-18,0 cm ³ /1000 mind.100,0 cm ³ /1000	4	3,0
1.6 Full-load speed regulation	1220	31,0-39,0 cm ³ /1000	strokes	

2. Test Sp	ecificatio	ns Checking valu	ies in brackets		
2.1 Timing device	rev/min mm	Start 200-350(170	-380) 4nn	700 ,9)4,5-5,5(4,	900 880-1050 2-5,8)5,2-5,9(4,9-6,2)
2.2 Supply pump Overflow delivery	rev/min kp/cm²	200 2,3-2,8(2,1 500			1150 6,4-6,9(6,2-7,1) 1150
	cm ³ /10 s	55-100(40-1	10)		55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1250-1300 (1230-1320) 1220 1160-1180 1120 800 500	0 Start 75,0-78,0 65,5-68,5	(30,0-40,0) (74,0-79,0) (74,0-76,0) (64,5-69,5)	
	Stop	1150	0.		
Idle stop	Full	420-500 (400-520) 370		(11,0-19,0)	
End stop	Start	100 220-320	mind.100,0		

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 3,00 mm Dimension V = 24,65 mm

WPP 001/4 IHC 5,1 h

2. Edition

0 460 306 152

VA 6/100 H 1050 CR 78 Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

Checking values in brackets

5.12 supersedes IHC company

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

D 310 engine:

Pre-stroke setting

estoil-ISO 4113

0,3 ± 0.04

2. Test Specifications

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B Pre-setting see reverse side

1. Settings	rev/min	Sett ngs		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	2,1-2,9	mm		
1.2 Supply pump pressure	800	4,5-5,0	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	60,0-61,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air		~~~	cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	400	7,0-13,0	cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.85,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1120	11,0-19,0	cm ³ /1000 strokes		

Z. IESt Op	Culleano	The Checking value			
2.1 Timing device	rev/min	480-600(450-	630)	800	920-1050
	mm	Start	-	(1,8 - 3,2)	3,4-4,1 (3,1-4,4)
2.2 Supply pump	rev/min	200		800	1050
	kp/cm²	1,3-1,8(1,1-	2,0)	(4,3 - 5,2)	5,5-6,0(5,3-6,2)
Overflow delivery	rev/min cm ³ /10 s	500 55 - 100 (40	-110)		1050 55 - 100 (40 - 110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	3	Charge-air pressure kp/cm ⁹
End stop	Full	1150-1200 (1130-1220) 1120 1020 800 500	0 60,0-63,0 56,5-59,5	(59,5-61	,0) ,5)
	Stop	1950	0		
Idle stop	Full	480-530 (460-550) 400	0	(6,0-14,	6)
End stop	Start	100 220 - 300	mind. 85	,0	

Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $V = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 3,5 mm Dimension V = 24,6 mm

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En

G8

46

WPP 001/4 STE 2,3 c

2. Edition

En

VA 3/90 H 1200 BR 143 O 460 393 004

2 1 Timing device rev/min

superseder Steyr company WD 307

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All text specifications are valid for Bosci-Fuel Injection Pump Test Benches and Texters
Test Intructions and Test Equipment

VDT-WP/9 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,3 mm Plunger lift of 1,0 mm related to outlet "A"

2. Test Specifications Checking values in brackets

1.	Settings	rev/min	Settings		Charge-ter press kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel			mm		
1.2	Supply pump pressure	1200	6,3-6,8	kp/cm²		1
1.3	Full-load delivery without charge-air pressure	800	54,0-55,0	cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
14	Idle speed regulation	250	13,0-19,0	cm ³ /1000 strokes		3,0
1.5	Start	100	mind.70,0	cm ³ /1000 strokes		
16	Full-load speed regulation	1300	17,0-25,0	cm ³ /1000 strokes		

	mm				
2.2 Supply pump	rev/min kp/cm ²	100 1,0-1,5(0,8-	1,7)	Ž.	1200 6,3-6,8(6,1-7,0)
Overflow delivery	rev/min cm ³ /10 s	500 mind. 25			1000 55-125(40-140)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1220-1380 (1300-1400) 1370 1300 1180 800 500	< 5.0	(16,0-26,0) (52,5-57,5) (53,5-55,5) (55,0-60,0)	
idle stop	Full Start	340-410 (320-430) 250	mind. 70,0	(12,0-20,0)	
End stop		110-210		· •	

estoil-ISO 4113

G9

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 45 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = - MM Dimension V = - MM

WPP 001/4 STE 2,3 c 2

1. Edition

VA 4/90 H 1200 BR 144 0 460 394 004

supersedes

company Steyr

engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

0,3 _{mm}

Plunger lift of 1,0 mm related to outlet "A"

Charge-air press Difference in delivery Settings rev/min 1. Settings 1.1 Timing device travel 1000 5,3-5,8 kp/cm² 1.2 Supply pump pressure 900 53,0-54,0 2,5 cm³/1000 strokes 1.3 Full-load delivery without charge air pressure cm³/1000 strokes Full-load delivery with charge-air pressure 250 14,5-20,5 3.0 cm3/1000 strokes 1.4 Idle speed regulation 100 mind.76,0 cm³/1000 strokes 15 Start 1270 21,0-29,0 cm³/1000 strokes 1.6 Full-load speed regulation

2. Test Sp	ecificatio	NS Checking value	s in brackets		
2.1 Timing device	rev/min				
	mm	ļ			·
2.2 Supply pump	rev/min	100		1000)
	kp/cm ²	0,8-1,3(0,6-	1,5)	(5,1-6,0)	
Overflow delivery	rev/min	500			1000
	cm ³ /10 s	mind. 25			55-125(40-140)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm 1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1310-1350 (1290-1370) 1270 1150 900 500	0 55,5-58,5 51,5-54,5 0	(20,0-30,0) (54,5-59,5) (52,5-54,5) (50,5-55,5)	
idle stop	Full Start	330-380 (310-400) 250 100	0 mind. 76,0	(13,5-21,5)	
End stop		110-210		•	

Festoil-ISO 4113

Angle to the stop-plate	Pre-setting dimension
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = - MM Dimension V = - MM

WPP 001/4 IHC 2,4 a

3. Edition

En

VA 3/100 H 950 BR 9

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes 4.69

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

company IHC XDD 155

Pre-stroke setting

 $0.3_{mm} \pm 0.02 (\pm 0.04)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

1. Settings	rea/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	500	7,1-8,1	mm		
1.2 Supply pump pressure	500	5,0-5,5	kp/cm²		
1.3 Full-load delivery without charge-air pressure	700	58,5-59,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		1
1.4 Idle speed regulation	400	15,0-21,0	cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1000	36,0-44,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	es in brackets			
2.1 Timing device	rev/min	120-270 (90-	300)	500		700-850
	mm	Start		(6,8-8,4)	12,	,7-13,4(12,4-13,7)
2.2 Supply pump	rev/min	100		500		950
2.2 Supply pullip	kp/cm²	2,2-2,7(2,0-	2,9)	(4,8-5,7)	7.	,0-7,5(6,8-7,7)
		500			-	950
Overflow delivery	rev/min cm ³ /10 s	mind. 27	1		5	5-125(40-135)
	Cin-710's					7 120(40 100)
2.3 Fuel deliveries						
Speed control lever	Delivery lever	rev/min	cm ³ /1000 stroke	s		Charge-air pressure kp/cm ²
End stop	Full	1020-1070 (1000-1090) 1000 930 700 500	0 62,5-65,6 53,0-56,0	(35,0-45 (61,5-66 (58,0-60 (52,0-57	(,5) (,0)	
	Stop	950	0			·
Idle stop	Full	460-510 (440-530)	0	/// 0 00		
		400		(14,0-22	,0)	
. •	Start	100	mind.90,			
End stop		500 mind.180	34,0-48,	0 (33,0-49	,0)	·

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 2,0 mm Dimension V = - mm

Test Specifications Distributor-Type **Fuel Injection Pump** VA 3/100 H 1250 BR 9-1

T--10-----

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

WPP 001/4 IHC 2,4 c

2. Edition

6.69 supersedes IHC company D 155 engine

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment **VDT-WPP 161/4 B**

Pre-stroke setting

 $0,3 \text{ mm} \pm 0,02 (\pm 0,04)$

Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery
1.1 Timing device travel	900	6,8-7,8	mm .		
1.2 Supply pump pressure	900	4,7-5,2	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1000	65,0-66,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4 Idle speed regulation	300	9,5-15,5	cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1330	32,0-40,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio	NS Checking value	s in brackets	;		
2.1 Timing device	rev/min	350-500 (320	-530)	90	0	1120-1250
	mm	Start		(6,5-8	,1)	9,7-10,4(9,4-10,7)
2.2 Supply pump	rev/min	100		90	0	1250
	kp/cm²	0,8-1,3(0,6-	1,5)	(4,5-5	,4)	5,0-6,5(5,8-6,7)
Overflow delivery	rev/min	500		100	0	1250
•	cm ³ /10 s	mind. 27	!	55-125(40-135)	55-125(40-135)
2.3 Fuel deliveries						
Speed control lever	Delivery lever	rev/min	cm ³ /1000 s	trokes		Charge-air pressure kp/cm ²
End stop	Full	1380-1430 (1360-1450) 1330 1230 1000 500	0 61,0-66 54,5-5	4 , 0 (31,0-41,0) 60,0-65,0) 64,5-66,5) 53,5-58,5)	
	Stop	1250	0			
idle stop	Full	340-390 (320-410) 300	0	(1	8,5-16,5)	
End stop	Start	100 500 mind.150	mind.9			

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 56 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 1,5 mm Dimension V = - mm



WPP 001/4 THC 2,9 b

3. Edition

En

VA 3/100 H 1050 BR 112

Nozzle-and-holder assembly

supersedes

4.69 IHC

1 688 901 020 (172 + 3 bar)

company

D 179

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Pre-stroke setting

0,3 mm

2. Test Specifications

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment **VDT-WPP 161/4 B**

Pre-setting see reverse side

		C 30.18. 9 300 1010.			
1. Settings	rev/min	Settings		Charge-air-press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	600	7,8-8,8	mm		
1.2 Supply pump pressure	600	4,5-5,0	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	70,5-71,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	490	17,0-23,0	cm ³ /1000 strokes		3,0
1.5 Start (mech.) 196bar	100	mind.90,0	cm ³ /1000 strokes		
1.6 Full-li€ad speed regulation	1150	26,0-34,0	cm ³ /1000 strokes		

Checking values in brackets

2.1 Timing device	rev/min	180-330(150-	360)	600	840-1000
	mm	Start		(7,5-9,1)	13,7-14,4(13,4-14,7)
2.2 Supply pump	rev/min	100	}	600	1050
	kp/cm²	1,2-1,7(1,0-	1,9)	(4,3-5,2)	6,5-7,0(6,3-7,2)
Overflow delivery	rev/min	500)		1000
	cm ³ /10 s	mind.2	25		55-125(40-140)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 stroke	es	Charge-air pressure kp/cm ²
End stop	Ful!	1170-1250 (1150-1270) 1210 1150 1030 800 500	0 < 3,0 73,0-76,0 65,5-69,5	(70,0-72,0)	
	Stop	1050	0		·
idle stop	Fuli	440 500 (420-520) 400	0	(16.0-24.0)	
End stop	Start	100 500 mind.150	mind.90,0 max. 60,0		

Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 0,5 mm (see BMP) Dimension V = - mm

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WPP 001/4 IHC 3,9 b 3
1. Edition

n

VA 4/100 H 1250 BR 63-1

supersedes

company

IHC

engine

D 239

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0.5 mm Plunger lift of 1.0 mm related to outlet "A"

1.	Settings	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm ³
1.1	Timing device travel	800	8,8-9,8	mm		
1.2	Supply pump pressure	800	4,9-5,4	kp/cm²		
1.3	Full-load delivery without charge-air pressure	800	69,5-70,5	cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4	Idle speed regulation	350	11,0-17,0	cm ³ /1000 strokes		3,0
15	Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1.6	Full-load speed regulation	1300	44,0-52,0	cm ³ /1000 strokes		

2. Test Sp	ecificati	ONS Checking values in brackets		
2.1 Timing device	rev/min	200-350(170-380)	800	1050-1200
	mm	Start	(8,5-10,1)	13,7-14,4(13,4-14,7)
2.2 Supply pump	rev/min	100	800	1250
	kp/cm ²	1,3-1,8(1,1-2,0)	(4,7-5,6)	6,5-7,0(6,3-7,2)
Overflow delivery	rev/min	500	1000	
Overnow delivery	cm ³ /10 s	mind.25	55-125(40-14	0)

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1350-1400 (1330-1420) 1300 1300 1200 800 500	0 Start 66,5-69,5 67,5-70,5	(43,0-53,0) (65,5-70,5) (69,0-71,0) (66,5-71,5)	
	Stop	1250	0		
idle stop	Full	390-440 (370-460) 350	0	(10,0-18,0)	
End stop	Start	100 500 mind.180	mind.90,0 35,0-65,0	(34,0-66,0)	<u>.</u>

Testoil-ISO 4

G19

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Testoil-ISO 4113

Pre-setting dimensions	
Pump Dimension IV = 0,5 mm Dimension V = - mm	
	Pump Dimension IV = 0,5 mm

46

WPP 001/4 IHC 3,9 b 2 1. Edition

VA 4/100 H 1250 BR 63

supersedes

company

IHC

engine

D 239

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,5 mm

Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	8,8-9,8	mm		
1.2 Supply pump pressure	800	4,9-5,4	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	66,6-67,5	cm ³ /1000 strokes		2,5
Full-load delivery with char pressure	rge-air		cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
1.5 Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1350	28,5-36,5	cm ³ /1000 strokes		

2. Test Sp	ecificati	ONS Checking values in bracket	s	
21 Timing device	rev/min	200-350(170-380)	800	1050-1200
	¦ mm	Start .	(8,5-10,1)	13,7-14,4(13,4-14,7)
2.2 Supply pump	rev/c:iin	100	800	1250
	kp/cm ²	1,3-1,8(1,1-2,0)	(8,6-10,0)	6,5-7,0(6,3-7,2)
Overflow delivery	rev/min	500	1000	
,	cm ³ /10 s	mind.25	55-125(40-140)	

23	Fuel	deliveries	

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge air pressure kp/cm
End stop	Full	1350-1400 (1330-1420)	0		
		1330 1200 800	61,0-64,0	(27,5-37,5) (60,0-65,0) (66,0-68,0)	
		500	63,5-66,5	(62,5-67,5)	
	Stop	1250	0		
Idle stop	Full	390-440 (370-460)	0		
		350 100	 mird.90,0	(11,0-19,0)	
End stop	Start	500 mind.180	max.35,0-60	,0 	

Testoil-ISO 4113

G21

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 0,5 mm Dimension V = - mm

WPP 001/4 IHC 2,9 c 2

1. Edition

En

VA 3/100 H 1100 BR 62

supersedes

IHC D 179

company engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,3 Plunger lift of 1,0 mm related to outlet "A"

1.	Settings	rev/min	Settings		Charge-air press kp/cm	Difference in delivery cm ³
1.1	Timing device travel	600	5,9-6,9	mm		
12	Supply pump pressure	600	3,9-4,4	kp/cm ²		
1.3	Full-load delivery without charge-air pressure	800	63,5-64,6	cm ³ /1000 strokes		2,5
	Full-load delivery with Gnarge-air pressure			cm ³ /1000 strokes]
14	Idle speed regulation	375	12,0-18,0	cm ³ /1000 strokes		3,0
1.5	start (mech.) 196 bar	100	mind.90,0	cm ³ /1000 strokes		
16	Full-load speed regulation	1200	21,0-29,0	cm ³ /1000 strokes		

2. Test Sp	ecificatio		-			
2.1 Timing device	rev/min	120-270(90-3	300)	600		-1030
	mm	Start		(5,6-7,2)	11,7-12,4(11,4-12,7)
		100		600	• 14	100
2.2 Supply pump	rev/min	0,8-1,5(0,6-	-1.5)	(3,7-4,6)	6,1-6,6(5	.9-6.8)
	kp/cm ²	500	· • - •	1000		,,-,
Overflow delivery	rev/min		_		440)	
	cm ³ /10 s	mind.25	•	55-125(40	-140)	
23 Fuel deliveries			· · · · · · · · · · · · · · · · · · ·			
Speed control lever	Delivery lever	rev/min	cm ³ /1000 stroke	es	Charge-air pr	essure kp/cm ²
End stop	Full	1210-1270	0			
 -		(1190-1290)				
		1200		(20,0-3)),0)	
		1100	66,5-69,	5 (65,5-70),5)	

Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
Full	1210-1270 (1190-1290)	0	(20 0-20 0)	
	1100	66,5-69,5	(65,5-70,5)	
	500	65,0-68,0	(64,0-69,0)	
Stop	1100	0		
Full	440-520 (420-540)	0		
	375		(11,0-19,0)	
Start	100 500 mind, 150	mind.90,0 35,0-57,0	(34,0-58,0)	
	Full Stop Full	Full 1210-1270 (1190-1290) 1200 1100 800 500 Full 440-520 (420-540) 375 100	Full 1210-1270 0 (1190-1290) 1200 1100 66,5-69,5 800 500 65,0-68,0 Stop 1100 0 Full 440-520 0 0 (420-540) 375 100 mind.90,0 35,0-57,0	Full 1210-1270 (1190-1290) 1200 (20,0-30,0) 1200 (65,5-69,5 (65,5-70,5) 800 (63,0-65,0) 65,0-68,0 (64,0-69,0) Stop 1100 0 Full 440-520 (420-540) 375 (11,0-19,0) mind.90,0 35,0-57,0 (34,0-58,0)

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Angle to the stop-plate	Pre-setting dimensions		
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 55 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV= 0,5 mm (see BMP Dimension V= - mm		

0,3 mm

Plunger lift of 1,0 mm related to outlet "A"

WPP 001/4 IHC 2,9 c 2. Edition

VA 3/100 H 1200 BR 61

Pre-stroke setting

supersedes

10.69

company engine

IHC D 179

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch** Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Charge-air press | Difference in delivery 1. Settings 1.1 Timing device travel 800 8,8-9,8 mm 1.2 Supply pump pressure 800 5,0-5,5 kp/cm² cm³/1000 strokes 800 67,0-68,0 1.3 Full-load delivery without 2,5 charge-air pressure cm3/1000 strokes Full-load delivery with charge-air 375 12,0-18,0 cm3/1000 strokes 1.4 Idle speed regulation 3,0 15 Start (mech.) 196 bar 100 mind.90,0 cm³/1000 strokes 1300 31,0-39,0 cm3/1000 strokes 16 Full-load speed regulation

2. Test Sp	ecificati	ONS Checking values in brackets			
2.1 Timing device	rev/min	170-320(140-350)	800	1050-1200	
		Start	(8,5-10,1)	13,7-14,4(13,4-14,7)	
2.2 Supply pump	rev/min	100	800	1200	
	kp/cm ²	1,0-1,5(0,8-1,7)	(4,8-5,7)	6,7-7,2(6,5-7,4)	
Overflow delivery	rev/min	500	1000		
	cm ³ /10 s	mind.25	55-125(40-14	0)	

23	Fuel	deliv	eries
----	------	-------	-------

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1350-1360 (1330-1380)	0		,
·		1300 1150 800	72,0-75,0	(30,0-40,0) (71,0-76,0) (66,5-68,5)	
		500	63,5-66,5	(66,5-68,5) (62,5-67,5)	
	Stop	1200	0		
idie stop	Full	440-520 (420-540)	0		
		375		(11,0-19,0)	
End stop	Start	100 500 mind.150	mind.90,0 max. 35,0-	62 , 5	·

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 50 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump = 0,5 mm (see BMP 161/32) Dimension V = mm

Prüfwerte Verteiler-Einspritzpumpen

WPP 001/4 IHC 3,9 d 2. Ausgabe

VA 4/100 H 1250 BR 60 0 460 304 102

ersetzt

12.70

Firma: Motor:

IHC D 239

Düsenhalterkombination 1 688 901 020 (172 + 3 bar)

De

Samtliche Prufwerte gelten nur für BOSCH-Einspritzpumpen-Prufstande und Prufgerate Prüfanleitung und Prüfausrüstung VDT-WPP 161/4

Voreinstellung siehe Rückseite

 $0.5 \, \mathrm{mm}$ Vorhub-Einstellung Kolbenhub 1,0 mm bezogen auf Auslaß "A"

1. Einstellwerte	Drehzahi min ⁻¹	Einstellwerte	Ladedruck bar (kp/cm²)	Mengenunterschied cm ³
1.1 Spritzverstellerweg	700	8,5-9,5 mm		
1.2 Förderpumpendruck	700	4,6-5,1 bar (kp/cm²)		
1.3 Vollastmenge ohne Ladedruck	900	71,5-72,5 cm ³ /1000 Hül	pe	2,5
Vollastmenge mit Ladedruck		cm ³ /1000 Hul	pe	
1.4 Leerlauf-Abregelung	400	19,5-25,5 cm ³ /1000 Hül	pe .	3,0
1.5 Start (mech.) 196 bar	100	mind.90,0 cm ^{3/1000} Hul	pe	
1.6 End-Abregelung	1300	41,0-49,0 cm ³ /1000 Hül	ре	

2. Prüfwei 2.1 Spritz-	te Überprüfwi min-1	erte in Klammern 150-300 (120-330)	700	950-1100
versteller	mm	Beginn	(8,2-9,8)	13,7-14,4(13,4-14,7)
2.2 Förder-	min-1	100	700	1250
pumpe	bar (kp/cm²)	1,5-2,0(1,3-2,2)	(4,4-5,3)	6,1-6,6(5,9-6,8)
Überlaufmenge	min-1	500	1000	
Openadimenge	cm ³ /10s	mind. 25	55-125(40-140)	

Drehzahlhebel	Mengenhebel	Drehzahl min-1	Fördermenge cm ³ /1000 Hübe		Ladedruck bar (kp/cm²)
Endanschlag	Voll	1330-1390 (1310-1410) 1300 1200 900 500	0 69,5-72,5 66,5-69,5	(40,0-50,0) (68,5-73,5) (71,0-73,0) (65,5-70,5)	
	Stop	1250	0		
Leerlaufanschlag	Voll	480-540 (460-560) 400	0 °	(18,5-26,5)	·
Endanschlag	Start		mind.90,0 max. 35,0-6	5,0	·

Angle to the stop-plate	Pre-setting dimensions
Pump α = 25 ± 4° β = 43 ± 8° γ = 30 - 8° δ = 60 ± 8°	Pump Dimension IV = 0,5 mm Dimension V = - mm

WPP 001/4 IHC 5,8 v 1

1. Edition

En

VA 6/100 H 1450 BR 59 0 460 306 093

supersedes

company

IHC

engine

D 358

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting Plunger lift of 1,0 mm related to outlet "A"

			Charge-air press kp/cm ²	Difference in delivery cm ³
900 900 1100 500	8,6-9,6 5,4-5,9 75,5-76,5 9,5-15,5	cm ³ /1000 strokes		
100	mind.80,0	_		
	900 1100 500	900 5,4-5,9 1100 75,5-76,5 9,5-15,5 100 mind.80,0	900 8,6-9,6 900 5,4-5,9 1100 75,5-76,5 cm ³ /1000 strokes cm ³ /1000 strokes 100 mind.80,0 8,6-9,6 kp/cm ² cm ³ /1000 strokes cm ³ /1000 strokes	900 8,6-9,6 900 5,4-5,9 1100 75,5-76,5 cm ³ /1000 strokes cm ³ /1000 strokes 100 mind.80,0 8,6-9,6 kp/cm² kp/cm² cm³/1000 strokes cm³/1000 strokes

2. Test Specifications Checking values in brackets								
2.1 Timing device	rev/min	250-400 (220-430)	900	1200-1330				
	mm	Start	(8,3-9,9)	13,7-14,4(13,4-14,7)				
2.2 Supply pump	rev/min	100	900	1450				
	kp/cm ²	1,3-1,8(1,1-2,0)	(5,2-6,1)	7,2-7,7(7,0-7,9)				
Overflow delivery	rev/min	500	1500					
	cm ³ /10 s	mind. 25	55-125(40-14	10)				
23 Fuel deliveries				•				

23 Fuel c	leliveries
-----------	------------

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1630-1740 (1610-1760) 1630 1550 1420 1100 500	0 < 10,0 68,5-71,5 62,5-66,5	(23,0-33,0) (67,5-72,5) (75,0-77,0) (61,5-67,5)	
	Stop	1450	0		
Idle stop	Full	590-680 (570-700) 500	0	(8,5-16,5)	
End stop	Start	100 500 mind.180	mind.80,0 mind.35,0		•

Festoil-ISO 4113

gle to ti	the stop-plate	Pre-setting dimensions	
=	= 25 ± 4° = 45 ± 8° = 30 - 8° = 60 ± 8°	Pump Dimension IV = - ((iii)) Dimension V = - (mm)	
=	: 60 ± 8°		

Festoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

2. Edition

WPP 001/4 STE 4,0 a 1

800

VA 4/100 H 1200 CR 145-1 0 460 304 144

2. Test Specifications

2.1 Timing device | rev/min

supersedes

7.71

company engine

Steyr WD 410

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

1070-1200

VDT-WPP 161/4 B

Pre-setting see reverse side

 $0,3 \text{ mm } \pm 0,02 \ (\pm 0,04)$ Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	2,6-3,4	mm		
1 2 Supply pump pressure	800	4,3-4,8	kp/cm²		- Andrews
1.3 Full-load delivery without charge-air pressure	700	69,5-71,5	cm ^S /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4 Idle speed regulation	250	16,0-22,0	cm ³ /1000 strokes		3,0
1.5 Start	100	mind.80,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1280	36,0-44,0	cm ³ /1000 strokes		

Checking values in brackets

1330-550(300-580)

2.1 Himing device	revimin	330-330(300-	1000)	800	10/0-1200
	mm	Start		(2,3-3,7)	4,3-5,0(4,0-5,3)
2.2 Supply pump	rev/min	200		800	1200
	kp/cm ²	1,4-1,9(1,2-	2,1)	(4,1-5,0)	6,0-6,5(5,8-6,7)
Overflow delivery	rev/min	500			1200
	cm ³ /10 s	55-100(40-11	0)		55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	•	Charge air pressure kp/cm ⁻
End stop	Full ,	1350-1400 (1330-1380) 1280 1150 700 500	70,0-72,0 67,0-70,0	(35,0-45,0 (69,0-73,0 (69,0-72,0 (66,0-71,0))))
	Stop	1200	0		
idle stop	Full	310-400 (290-420) 250	0	(15,0-23,0	
End stop	Start	100 150-250	mind.80,0		

Pre-setting dimensions

Dimension IV = 2,5 mm Dimension V = 24.6 mm

Pump

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I	•	Ü	į
	1	п	7

Angle to the stop-plate

 $= 25 \pm 4^{\circ}$

= 40 ± 8° = 30 - 8° = 60 + 8°

Pump

WPP 001/4 IHC 3,9 a

2. Edition

En

VA 4/10 H 1100 CR 187/2 CR 187/2 P

0 460 304 244

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes 5.80 company IHC

Setting of the pointer at a stroke of 1 mm in

All test specifications are valid for Bosch Fuel Injection Pump Test Benches

D 239

relation to outlet "A".

Bosch Fuel Injection Pump Test Benches and Testers
Test Intructions and Test Equipment

VDT-WPP 161/4 B

engine

Pre-stroke setting $0.5 \text{ mm} \pm 0.02 (\pm 0.04)$

Pre-setting see reverse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	3,9-4,7	mm .		
1.2 Supply pump pressure	900	4,9-5,4	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	73,0-74,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
1.5 Start	100	mind.85,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1170	31,0-39,0	cm ³ /1000 strokes		

2. Test Sp 2.1 Timing device	rev/min		ng values in brackets 500	900		
	mm	Start	1,1-2,1(0,8-2,4)	(3,6-5,0)		
2.2 Supply pump Overflow delivery	rev/min	20	200		1100	
	kp/cm ²	1,4-1,9(1,2-2,1)		(4,7-5,6)	5,7-6,2(5,5-6,4)	
	rev/min	500 55-100(40-110)			1100	
	cm ³ /10 s			5	5-100(40-110)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ^{&}
End stop	Full	1200-1250 (1180-1270) 1170	0	(20.0.40.0)	
		1080	70,25-72,75	(30,0-40,0) (69,25-73,25) (72,5-74,5)	
		500	71,0-73,0	(70,0-74,0)	
	Stop	1100	0		
	Зюр				
idle stop	Futi	400-450 (380-470) 350	0	(11,0-19,0)	
End stop	Start	100 260-360	mind.85,0	(11,0-15,0)	

Angle to the stop-plate	Pre-setting dimensions
The state of the s	rie-setung dimensions
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Pump Dimension IV = 2,00 mm Dimension V = 24,65 mm

46

WPP 001/4 IHC 3,5 c 7

1. Edition

En

VA 4/100 H 1250 CR 68-1 P 0 460 304 231

supersedes

company IHC

engine D 206

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04) Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Sevin, js		Charge-air press kp/cm²	Difference in delivery cm ³
1.1 Timing device travel	800	4,2-5,2	mm		
1.2 Supply pump pressure	800	5,3-5,8	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800 ,	55,5-56,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
1.5 Start (196 bar)	100	min.90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	31,0-39,0	cm ³ /1000 strokes		

2.1 Timing device	rev/min	Start 170-320	400	800	1000	1100-1250
	mm	1,2-2,2(0,9-2,5)	(3,9-5,5			
22 Supply pump	rev/min kp/cm ⁸	200	800			1250
	kp/cin-	2,1-2,6(1,9-2,8)	(5,1-6,0)	7,1-7,	6(6,9-7,8)
Overflow delivery	rev/min					1250
	cm ³ /10 s				55-10	0(40-110)

					55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1260-1280 1200 800 500	Start 51,0-54,0 48,0-51,0	(50,0-55,0) (55,0-57,0) (47,0-52,0)	
	Stop	1250	0		
Idle stop	Full	420-470 350	0 12,0-18,0	(11,0-19,0)	
End stop	Start	100 220-320	min. 90,0		

Testoil-ISO 4113

BOSCH

Testoil-ISO 4113

Angle to the stop-plate		Pre-setting dimensions
Pump		Pump
α	= 25 ± 4°	Dimension IV = 3.0 mm
β	= 40 ± 8°	Dimension V = 24,65 mm
Y	= 30 - 8°	
δ	= 60 ± 8°	·

WPP 001/4 IHC 2,9 b 1

3. Edition

VA 3/100 H 1050 CR 11-1 (see VDT-WPP 161/4, Suppl. 1)

2. Test Specifications

Stop

Full

Start

7.73 supersedes IHC

company D 179 tractor 523

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment VDT-WPP 161/4 8

Pre-stroke setting U mm
Plunger lift of 1,0 mm related to outlet "A"

Pre-setting see reverse side

1.	Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel	700	3,3-4,1	mm		
1.2	Supply pump pressure	700	4,5-5,0	kp/cm ²		
1.3	Full-load delivery without charge-air pressure	800	65,0-61,0	cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure			cm ³ /1000 strokes]
	Idle speed regulation	400	12,0-18,0	cm ³ /1000 strokes		3,0
1.5	Start :	100	mind.90,0	cm ³ /1000 strokes		
1.6	Full-load speed regulation	1100	41,0-49,0	cm ³ /1000 strokes		

Checking values in brackets

1050

470-550

(450-570)400

100

220-300

2.1 Timing device	rev/min	250-400(220	-430) 50	0 700	850-1000
	mm	Start	1,1-2,1	(0,8-2,4)(3,0-	4,4)5,2-5,9(4,9-6,2)
2.2 Supply pump	rev/min	200	0	700	1050
	kp/cm ²	2,0-2,5(1,8	-2,3)	(4,3-5,2)	5,8-6,3(5,6-6,5)
Overflow delivery '	rev/min	500	0		1050
	cm ³ /10 s	55-100(40-1	10)		55-100(40-110)
23 Fuel deliveries					•
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm'
End stop	Full	1140-1200	0		
		(1120-1220) 1100		(40,0-50,0)	
		1050-1070	Start	(40,0-30,0)	
		1000	71,0-74,0		
	-	800	54 0 55 0	(61,5-64,5)	
		500	61,0-64,0	(60,0-65,0)	
	I	i i	i		1

0

0

(11,0-19,0)

Testoil-ISO 4113

End stop

idle stop

mind.90,0

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension IV = 4,2 mm Dimension V = 24,6 mm

WPP 001/4 HAN 3,1 1. Edition

VA 6/100 H 1300 CR 54-2 0 460 306 115

Pre-stroke setting

supersedes

company

Hanomag

engine

D 161 R-75 PS

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Charge air press | Difference in delivery Settings rev/min 1. Settings 1,6-2,4 1000 1.1 Timing device travel 1000 4,6-5,1 kp/cm² 1.2 Supply pump pressure 1100 50,5-51,5 cm³/1000 strokes 1.3 Full-load delivery without charge air pressure cm³/1000 strokes Full-load delivery with charge-air pressure 300 12,0-18,0 cm3/1000 strokes 1.4 Idle speed regulation 100 mind.65,0 cm³/1000 strokes 1400 31,0-39,0 cm3/1000 strokes 16 Full-load speed regulation

2. Test Sp	ecificatio	NS Checking value			
2.1 Timing device	rev/min	620-770(590-	800)	1000	1020-1170
	mm	Start _		(1,3-2,7)	2,5-3,2(2,2-3,5)
2.2 Supply pump	fev/min	100	100		1300 ,
	kp/cm ²	0,8-1,3(0,6-	1,5	(4,4-5,3)	5,6-6,1(5,4-6,3)
Overflow delivery	rev/min	500			1300
Overnow departery	cm ³ /10 s	55-100(40-11	0)		55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm/
End stop	Full	1450-1500 (1430-1520) 1400 1300 1100 500	0 50,5-53,5 48,5-51,5	(30,0-40,0) (49,5-54,5) (50,0-52,0) (47,5-52,5)	
	Stop	1300	0		
idle stop	Full	400-450 (380-470) 300	0	(11,0-19,0)	
-	Start	100	mind.65,0		
End stop		mind.150		•	

Testoil-ISO 4113

		пап 3,1	-2-
Ang	le to the stop-plate	Pre-setting dimensions	
Pum	q	Pump	
α	$= 25 \pm 4^{\circ}$	Dimension IV = - IIII	
β	= 40 ± 8°	Dimension V = - mm	
Y	= 30 - 8°		
δ	= 60 + 8°	·	

WPP 001/4 HAN 3.1 d 5 1. Edition

VA 4/100 H 1300 CR 53 0 460 304 145

supersedes

company

Hanomag

engine

D 142 R 8/6

1150-1270

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

۲r	e-st	roke	settii	ng

Testoil-ISO 4113

2. Test Specifications

2.1 Timing device | rev/min

· · · · · · · · · · · · · · · · · · ·				The Setting Secretarise state		
1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³	
1 1 Timing device travel	1100	2,5-3,3	mm	<u> </u>		
1.2 Supply pump pressure	1100	4,8-5,3	kp/cm ²			
1.3 Full-load delivery without charge-air pressure	1100	47,5-48,5	cm ³ /1000 strokes		2,5	
Full-load delivery with charge air pressure			cm ³ /1000 strokes			
1.4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0	
1 5 Start	100	mind.75,0	cm ³ /1000 strokes			
1 6 Full-load speed regulation	1400	36,0-44,0	cm ³ /1000 strokes			

1100

(11,0-19,0)

Checking values in brackets

600-750(570-780)

350

100

150-250

2.2 Supply pump Overflow delivery	rev/min kp/c m ² rev/min cm ³ /10 s	Start 200 1,1-1,6(0,9- 500 55-100(40-11		(2,2-3,6) 1100 (4,6-5,5)	3,4-4,1(3,1-4,4) 1300 5,3-5,8(5,1-6,0) 1300 55-100(40-110)
23 Fuel deli /eries					
Special control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge air pressure kp/cm²
End stop	Full	1500-1600 (1480-1520)	0		
		1400 1300 1100 600	46,0-49,0 49,0-53,0	(35,0-45,0) (45,0-50,0) (47,0-49,0) (48,0-54,0)	
	Stop	1300	0	·	
Idle stop	Full	500-580 (480-600)	0		

End stop

Start

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mind.75,0

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = MM Dimension V = MM

WPP 001/4 SAV 2,5 a 1

2. Edition

VA 3/100 H 1250 CR 152 0 460 303 102

supersedes 11.73

Saviem

engine

714-30-01

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

Testoil-ISO 4113

 $0,4 \text{ mm} \pm 0,02(\pm 0,04)$

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	3,2-4,0	mm		
1 2 Supply pump pressure	1000	5,3-5,8	kp/cm²		
1.3 Full-load delivery without charge-air pressure	900	56,5-57,5	cm ³ /1000 strokes	·	2,5
Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	300	7,0-13,0	cm ³ /1000 strokes	<u> </u>	3,0
15 Start (automa)	100	mind.80,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	33,5-41,5	cm ³ /1000 strokes		

2.1 Timing device	rev/min	ns Checking value 450-600 (420-	630)	1000	1150-1300
	шш	Start 200		(2,9-4,3) 1000	5,2-5,9(4,9-6,2) 1250
2.2 Supply pump	rev/min kp/cm ⁹	1,5-2,0(1,3-	2,2)	(5,1-6,0)	6,2-6,7(6,0-6,9)
Overflow delivery	rev/min cm ³ /10 s	500 55-100(40-11	500 55-100(40-110)		1250 55-100(40-110)
2.3 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1380-1430 (1360-1450) 1300 1250-1280 1230 900 500	0 Start 58,0-61,0 52,0-55,0	(32,5-42,5) (57,0-62,0) (56,0-58,0) (51,0-56,0)	
	Stop	1250	0		
Idle stop	Full	340-410 (320-430) 300	0	(6,0-14,0)	
•.	Start	100	mind.80,0		
End stop	1.	110-210		•	

BOSCH

2]

Pump $\alpha = 25 \pm 4^{\circ}$

Angle to the stop-plate

$$= 45 \pm 8^{\circ}$$

$$\frac{9}{6} = 30 - 8^{\circ}$$

Pre-setting dimensions

Testoil-ISO 4113

20

En

WPP 001/4 MWM 2,5 c

1. Edition

VA 3/100 H 1150 BR 66 0 460 303 111

2. Test Specifications

supersedes

company

engine

MWM D 935-L3

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Sosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment #DT-WPP 161/4 B

Pre-setting see reverse side

0,4 _{mm} Pre-stroke setting Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings	Charge-air press kp/cm²	Difference in delivery cm ³
1 1 Timing device travel	800	6,2-7,2 ^{mm}		
1.2 Supply pump pressure	800	5,1-5,6 kp/cm²		
1.3 Full-load delivery without charge-air pressure	900	60,0-61,0 cm ³ /1000 stro		2,5
Full-load delivery with charge-air pressure		cm ³ /1000 stro	kes	
1 4 Idle speed regulation	250	10,0-16,0 cm ³ /1000 stro	kes	3,0
1 5 Start	100	mind.80,0 cm ³ /1000 stro	kes	
1.6 Full-load speed regulation	1250	< 7,5 cm ³ /1000 stro	kes	

Checking values in brackets

2.1 Timing device	rev/min	300-450(270-4	180)	800	930-1050
	mm	Start	(5	,9-7,5)	8,7-9,4(8,4-9,7)
2.2 Supply pump	rev/min	100		800	1150
	kp/cm ²	1,7-2,2(1,5-2	2,4) (4	,9-5,8)	6,1-6,6(5,9-6,8)
Overflow delivery	rev/min	500		1000	
	cm ³ /10 s	mind.25	55-12	5(40-140)	
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1220-1270 (1200-1290) 1250 1160-1180 1130 900 500	0 max. 7,5 Start 58,5-61,5 (53,0-56,0 (59,5-61,5)	
Idle stop	Full	360-420	0		
		(340-440) 250	(9	9,0-17,0)	
Fnd stop	Start	100 500 mind 150	mind.80,0 30,0-54,0 (2	29,0-55,0)	

		TIMIT ESO C	- 6 -
Ang	gle to the stop-plate	Pre-setting dimensions	
Pur α β γ δ	= 25 ± 4° = 50 ± 8° = 30 - 8° = 60 ± 8°	Pump Dimension IV = 4,0 mm Dimension V = - mm	
L			

WPP 001/4 GUL 3,1 a 3

1. Edition

VA 4/100 H 1000 BR 112 0 460 303 052

supersedes

Guldner .

4 L 79

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

0,1 _{mm} Pre-stroke setting Plunger lift of 1,0 mm related to outlet "A"

1.	Settings	rev/min	Settings	,	Charge-air press kp/cm²	Difference in delivery cm ³
1.1	Timing device travel	700	6,2-7,2	mm		
12	Supply pump pressure	700	4,0-4,5	kp/cm²		
1.3	Full-load delivery without charge-air pressure	700	50,0-51,0	cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
14	Idle speed regulation	250	7,0-13,0	cm ³ /1000 strokes		3,0
1.5	Start	100	mind.110,0	cm ³ /1000 strokes		
16	Full-load speed regulation	1040	16,0-24,0	cm ³ /1000 strokes		

2.1 Timing device	rev/min	280-430(250-460)	700	830-970
	mm	Start	(5,9-7,5)	8,7-9,4(8,4-9,7)
2 Supply pump	rev/min	100	700	1000
	kp/cm ²	0,8-1,3(0,6-1,5)	(3,8-4,7)	5,1-5,6(4,9-5,8)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125(40-140)	

23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm/
End stop	Full	1030-1080 (1010-1100) 1040 990-1020 980 700 500	0 Start 54,5-57,5 42,5-45,5	(15,0-25,0) (53,5-58,5) (49,5-51,5) (41,5-46,5)	
	Stop	100	U		
idle stop	Full	280-340 (260-360) 250	0	(6,0-14,0)	
End stop	Start	100 120-220	mind.110,0		

Angle to the stop-plate	Pre-setting dimensions
Pump α = 25 ± 4° β = 40 ± 8° γ = 30 - 8° δ = 60 + 8°	Pump Dimension IV = - mm Dimension V = - mm Dimension I = 7,0 mm Dimension II = 9,0 mm Dimension III = 30,8 mm

Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

WPP 001/4 STE 6,0 g

2. Edition

VA 6/100 H 1300 CR 153 0 460 306 127

supersedes

3.72

company

Steyr

engine

WD 610.01

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

0,04)

55-100(40-110)

cm³/10 s

				p	re-setting see rever	se side
1. Setting	S	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device to	ravel	700	2,4-3,4	mm		
1.2 Supply pump pi	ressure	700	4,0-4,5	kp/cm²		
1.3 Full-load deliver charge-air press		1300	60,5-61,5	cm ³ /1000 strokes	5	2,5
-	ry with charge-air			cm ³ /1000 stroke:		
1 4 Idle speed regu	lation	350	7,0-13,0	cm ³ /1000 stroke:	5	3,0
1.5 Start (auto	om.)	100	mind.85,0	cm ³ /1000 strokes	6	
1 6 Full-load speed	regulation	1450	26,0-34,0	cm ³ /1000 stroke:	,	
2. Test Sp	ecificatio	ns Checking	g values in brackets			
2.1 Timing device	rev/min	250-400(2		700	900-1050	
	mm	Start		(2,1-3,7)	4,3-5,0(4,0	-5,3)
2.2 Supply pump	rev/min	200)	700	1300	
	kp/cm [®]	1,4-1,9(1	1,2-2,1)	(3,8-4,7)	6,0-6,5(5,8	-6,7)
Overflow delivery	rev/min	500)		1300	

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1500-1560 (1480-1580) 1450 1300 1000 500	0 60,0-62,0 60,5-64,5	(25,0-35,0) (60,0-62,0) (59,0-63,0) (59,5-65,5)	
	Stop	1300	0		
Idle stop	Full	450-520 (430-540) 350	0	(6,0-14,0)	
End stop	Start	100 110-220	mind.85,0		·

55-100(40-110)

Pre-setting dimensions

Dimension IV = 1,00 mm

Dimension V = 24,60 mm

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Angle to the stop-plate

= 25 ± 4°

= 55 ± 8° = 30 - 8° = 60 + 8°

WPP 001/4 STE 2,0 a 1

2. Edition

VA 2/100 H 1100 CR 156 0 460 302 007

supersedes 11.73

Steyr company

WD 210.40 engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting $0.3^{mm} \pm 0.02 (\pm 0.04)$

1. Settings	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery
1.1 Timing device travel	800	3,0-4,0	mm		
1.2 Supply pump pressure	800	4,4-4,9	kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1050	60,5-61,5	cm ³ /1000 strokes		2.5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		2,5
1.4 Idle speed regulation	250	13,0-19,0	cm ³ /1000 strokes		2.0
1.5 Start (autom.)	100	mind.90,0	cm ³ /1000 strokes		3,0
1.6 Full-load speed regulation	1250	11,0-19,0	cm ³ /1000 strokes		

z. rest sp	ECHICALIO	NS Checking value	es in brackets		
21 Timing device	rev/min	350-500(320-		800	880-1030
	mm	Start		(2,7-4,3)	4,2-4,9(3,9-5,2)
22 Supply pump	rev/min	200		800	1100
•	kp/cm ²	1,4-1,9(1,2-	2,1)	(4,2-5,1)	5,5-6,0(5,3-6,2)
Overflow delivery	rev/min	500			1100
	cm ³ /10 s	55-100(40-11	0)		55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	:	Charge-air pressure kp/cm ²
End stop	Full	1270-1320 (1250-1340) 1250 1050 900 500	0 60,0-62,0 65,5-68,5	(10,0-20,0) (60,0-62,0) (59,0-63,0) (64,5-69,5)	
	Stop	1100	0	·	
idle stop	Full	300-370 (280-390) 250	0	(12,0-20,0)	
End stop	Start		mind.90,0	(12,U-2U,U)	·

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 35 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 4,0 mm Dimension V = 24,6 mm

WPP 001/4 FIA 1,9c 1

2. Edition

VA 4/90 H 1900 CR 157-1 0 460 394 017

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

7.73 supersedes

company

Fiat

engine

237 AZ

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting

 $0,3 \text{ mm} \pm 0,02 (\pm 0,04)$

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1500	5,1-6,1	mm .		
1.2 Supply pump pressure	1500	6,0-6,5	kp/cm²		
1.3 Full-load delivery without	1500	33,0-34,0	cm ³ /1000 strokes		2,5
charge-air pressure Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	300	12,0-18,0	cm ³ /1000 strokes		3,0
15 Start (autom.)	100	mind.65,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1950	16,0-24,0	cm³/1000 strokes		

2. Test Sp	ecificati	ONS Checking values in brackets		
2.1 Timing device	rev/min	400-550(370-580)	1500	1650-1800
	mm	Start	(4,8-6,4)	6,1-6,8(5,8-7,1)
2.2 Supply pump	rev/min	200	1500	1900
	kp/cm²	1,1-1,6(0,9-1,8)	(5,8-6,7)	7,1-1,7(6,9-7,8)
Overflow delivery	rev/min	500		1900
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3 Fuel deliverie	S
--------------------	---

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	2100-2220 (2080-2240) 1950 1800 1500 500	31,5-34,5	(15,0-25,0) (30,5-35,5) (32,5-34,5) (28,0-33,0)	
Idle stop	Full Start	440-520 (420-540) 300 100 200-300	0 mind.65,0	(11,0-19,0)	·

Angle to the stop-plate	Pre-setting dimensions
Pump	Pump
$\alpha = 25 \pm 4^{\circ}$	Dimension IV = 3.0 mm
$^{\beta}$ = 40 ± 8°	Dimension V = 24,6 mm
Y = 30 - 8°	
$\delta = 60 + 8^{\circ}$	

WPP 001/4 HAN 4,7 a 2

1. Edition

En

0 460 306 135

VA 6/100 H 1700 CR 151-2. Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar) supersedes

company engine

Hanomag D 162 L

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for

Bosch Fuel Injection Pump Test Benches

Pre-setting see reverse side

Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-stroke setting

Testoil-ISO 4113

0.3m

± 0,02(± 0,04) |

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ²
1.1 Timing device travel	1300	4,7-5,5 ^{mm}		
1.2 Supply pump pressure	1300	5,9-6,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1000	54,0-55,0 cm ³ /1000 stro		2,5
Full-load delivery with charge-air pressure		cm ³ /1000 stro	kes	
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 stro	kes	3,0
1.5 Start	100	mind.65,0 cm ³ /1000 stro	kes	
1.6 Full-load speed regulation	1800	32,0-38,0 cm ³ /1000 stro	kes	

2. Test Spe	cificatio				
2.1 Timing device	ev/min	550-700(520-730)		1300	1530-1680
	mm	Start		(4,4-5,8)	6,9-7,6(6,6-7,9)
2.2 Supply pump	ev/min	100)	1300	1700
** ** *	kp/cm²	0,4-1,0(0,2	2-1,2)	(5,7-6,6)	7,2-7,7(7,0-7,9)
Overflow delivery	rev/min	500)		1700
* 1	cm ³ /10 s	55-100(40-1	10)		55-100(40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ⁵
End sup	Full	1880-1960 (1860-1980 1800 1700 1000 500)	(31,0-39,0) (53,0-58,0) (53,5-55,5) (48,0-54,0)	
	Stop	1700	0		
Idle stop	Full	500-600 (480-620) 350	0	(11,0-19,0)	
End stop	Start	100 200-300	mind.65,0		-

	11AN 4,7 a 2 -2-
Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 50 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 4,0 mm Dimension V = 24,6 mm

WPP 001/4 HAN 4,7 a 1

1300

3. Edition

VA 6/100 H 1700 CR 151 0 460 306 113

2. Test Specifications

2.1 Timing device rev/min

7.71 Hanomag company

D 162 L

1530-1680

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0,3 mm $\pm 0,02 (\pm 0,04)$ Plunger lift of 1,0 mm related to outlet "A"

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel 1.2 Supply pump pressure	1300 1300	4,7-5,5 5,9-6,4	mm kp/cm²		
1.3 Full-load delivery without charge-air pressure	1000	54,0-55,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure 1.4 Idle speed regulation	350	12 0 10 0	cm ³ /1000 strokes		2.0
1.5 Start	100	12,0-18,0 mind.65,0	cm ³ /1000 strokes		3,0
1.6 Full-load speed regulation	1800	31,0-39,0	cm ³ /1000 strokes		

Checking values in brackets

550-700(520-730)

2.2 Supply pump Overflow delivery	mm rev/min kp/cm ² rev/min cm ³ /10 s	Start 100 0,4-0,9(0,2- 500 55-100(40-11		(4,4-5,8) 1300 (5,7-6,6)	6,9-7,6(6,6-7,9) 1700 7,2-7,7(7,0-7,9) 1700 55-100(40-110)
2 3 Fuel deliveries Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1880-1960 (1860-1980) 1800 1700 1000 500	0 54,0-57,0 49,0-53,0	(30,0-40,0) (53,0-58,0) (53,5-55,5) (48,0-54,0)	
	Stop	1700	0		
Idle stop	Full	500-600 (480-620) . 350	0	(11,0-19,0)	
End stop	Start	100 200-300	mind.	•	·

Angle to the stop-plate	Pre-setting dimensions		
Pump $a = 25 \pm 4^{\circ}$ $\beta = 50 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 4.0 mm Dimension V = 24.6 mm		

J10

WPP 001/4 STE 6,0 g 1

2. Edition

En

VA 6/100 H 1100 CR 150 0 460 306 126

supersedes

11.73

company

Steyr

engine

WD 610.42

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

Test intructions and Test Equipment

VDT-WPP 161/4 8

Pre-setting see reverse side

Pre-stroke setting 0,3 mm $\pm 0,02$ ($\pm 0,04$)

1.	Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1	Timing device travel	800	2,9-3,7	mm		
1.2	Supply pump pressure	800	4,9-5,4	kp/cm²		·
13	Full-load delivery without charge-air pressure	800	53,0-54,0	cm ³ /1000 strokes		2,5
	Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4	idle speed regulation	280	15,0-21,0	cm ³ /1000 strokes	 	3,0
15	Start (autom.)	100	mind.80,0	cm ³ /1000 strokes		
1.6	Full-load speed regulation	1190	21,0-29,0	cm ³ /1000 strokes		

2. Test Sp	ecificati	Ons Checking values in brackets		
2.1 Timing device	rev/min	350-480(320-510)	800	930-1080
	mm	Start	(2,6-4,0)	4,3-5,0(4,0-5,3)
2.2 Supply pump	rey/min	200	800	1100
	kp/cm ²	1,7-2,2(1,5-2,4)	(4,7-5,6)	6,0-6,5(5,8-6,7)
Overflow delivery	rev/min	500		1100
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3	Fuel	delive	ries
-----	------	--------	------

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1250-1310 (1230-1330) 1190 1050 800 500	54,0-56,0	(20,0-30,0) (53,0-57,0) (52,5-54,5) (53,0-58,0)	·
	Stop	1100	0	,	
Idle stop	Full	360-420 (340-440) 280	0	(14,0-22,0)	
End stop	Start	100 150-250	mind.80,0		

Festoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions				
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 55 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 + 8^{\circ}$	Pump Dimension IV = 2,8 mm Dimension V = 24,6 mm				

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 EIC 5,9c 2. Edition

PES 6 A 80 D 320 RS 1280

RSV 300-1150 A0B 2003 R

4.80

company

Eicher

engine

EDK6-7 Turbo 98 kW (133 PS)

1 - 5 - 3 - 6 - 2 - 4 je 60°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2,10-2,30) 2,15-2,25

mm (from BDC)

Rotational speed rev/min t	Control rod travel mm 2	Fuel delivary cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ² /100 strokes 3	Spring pre-tensioning (forque-control valve) mm 6
1130	10,6+0,7	6,4 - 6,5	0,2(0,35)			
300	6,7-6,9	0,8 - 1,4	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	Upper rated speed rev/min			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control	travel mm	travel mm rev/min				Control- lever deflection	rev/min	travel	rev/min	travel	
lever	2	3	4	5	6.	in degrees 7	8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca.29	300	6,3	1130	10,6-10,7	
	Х	= 6,0				:	100	min.19,0	450	10,6-10,8	
ca. 54	1235-1	180=9,7 1265=4,0			·	<u> </u> 	300 430-490	_	350	11,8-12,4	
	1405=0),3- 1,7	<u> </u>			<u></u>	600	max. 1,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational- speed limitat	Rotational- speed limitat 3a Fuel delivery characteristics		Starting f	Starting fuel delivery 5		4a Idle stop	
1	mp. 40°C (104°F) cm³/1000 strokes 2	Note. changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ² /1000 strokes 7	rev/min 8	Control rod travel mm	
LDA	0,7 bar								
1130	65,0-66,0 (63,5-67,5)	1170-1180*			100	17,2-17,8 mm RW	300	6,8	
1130		1170 1100					300		

Checking values in brackets

* 1 mm less control rod travel than col 2



D. Adjustment Test for Manifold Pressure Compensator

Test at n =

1130

rev/min decreasing pressure – in bar gauge pressure

EIC 5,9 c

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041	
<u>-18(</u>	
stoil	
Tes	

Pump/governor	Setting	Measurement	diminution Control rod travel- difference		
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .		
PES 6 ARS 1280	0		8,1 - 8,2		
withAOB 2003 R		0,7	10,6 - 10,7		
		0,15	9,9 - 10,0		
		0,09	8,8 - 9,1		
			·		

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 MB 5,7 v 7 2. Edition

En

PES 6 A 90 D 410 RS 2596

RSV 350-1400 AOB 1141 L

supersedes

company

Daimler-Benz

5.81

engine

OM 352 A 123 kW (168 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,95-2,15)

Port closing at prestroke

2,00-2,10

mm (from BDC)

Testoil-ISO 4113

Rotational speed	Control rod travel	travel		Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm³/100 strokes	cm ³ / 100 strokes	mm	cm ⁹ /100 strakes	mm
1	2	3	4	2	3	6
1400	12,4+0,1	7,9 - 8,0	0,3(0,45)			
350	8,6-8,8	1,5 - 2,1	0,2(0,4)			
600	12,4+0,2					
500	11,4+0,1	c,Sp. 4 u. 5	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interm	ediate rat	ed speed	4	Lower	rated speed	(3) to	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	. 6	Control- lever deliection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 X =	0,3-1,0 5,75	-	-	-	ca.27	350 350	4,0 10,2-10,4	-	-
ca.70	1440-14 1535=16 1680= 0						710-770	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) FL	ill-load stop	6 Rotational- speed limitat	(3a) FL	uel delivery naracteristics	Starting tidle	fuel delivery 5	(4a) Idi	e stop
1	emp. 40°C (104°F) cm ³ /1000 strokes 2	Note. changed to) rev/min 3	rev/min	cm ² /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA 1400	0,7 bar 78,5 - 79,5 (76,5 - 81,5)	1440-1450*	LDA LDA 500	0,7 bar 67,0 - 69,0 (65,0 - 71,0) 0 bar 50,5 - 53,5 (48,5 - 55,5	100	79,25-89,25 bei 16,4 - 16,8 mmRW		

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Testoil-ISO 4113

rev/min decreasing pressure - in bar gauge pressure Test at n = 500

MB 5,7 v 7

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure ≈ bar	mm (1)
PES6ARS2596	0,7		12,4 - 12,5
with AOB 1141 L	0		11,4 - 11,5
o	0,33		12,2 - 12,3
	0,15		11,6 - 11,8

Notes

(1) when n =

rev/min and gauge pressure =

bar (maximum full-load control rod travel)

Testing the hydraulic start-locking device

Locking at

0.45 - 0.55 bar 0.25 - 0.35 bar Unlocking at

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 DAF 8,3 k 1

2. Edition

En

PE 6 A 95 D 410 RS 2525, X, Y RSV 250-1200 A 5 B 2013 DL Start test on EP/RSV governor according to Service Information

supersedes company

8.80 DAF

engine

DN825 (X, Y) DHR

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Festoil-ISO 4113

(1,95-2,15) 2,00-2,10 RW9

mm (from BDC)

Port closing difference between control-rod travel 9 and max. 3-4°

Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ^{3/} 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ⁴ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
12,6+0,1	10,8 - 11,0	0,3(0,6)			
5,9-6,1	0,8 - 1,0	0,3(0,5)			
11,2+0,1	C, Sp. 4-5	0,4(0,7)			
	į				
	travel mm 2 12,6+0,1 5,9-6,1	travel mm 2 cm ³ /100 strokes 3 12,6+0,1 10,8 - 11,0 5,9-6,1 0,8 - 1,0	travel mm 2 cm ³ /100 strokes 100 strokes 4 12,6+0,1 10,8 - 11,0 0,3(0,6) 5,9-6,1 0,8 - 1,0 0,3(0,5)	travel mm 2 cm ³ /100 strokes 100 strokes 4 mm 2 12,6+0,1 10,8 - 11,0 0,3(0,6) 5,9-6,1 0,8 - 1,0 0,3(0,5)	travel

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

(1) Uppe	r rated speed	l rev/min	Interm	ediate rati	ed speed	4	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	_	-	ca.16	250	5,5	1000	12,6+0,1
1	X =	3,0					100	min.19	400	12,6+0,2
ca.50	1230-12	240=11,6					250	5,9-6,1	300	12,8+0,4
(2a)	1275-13	305=4,0					585-645	= 2,0		
	1450=0,	,3-1,7					725	max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat	1140.	uel delivery naracteristics	Starting t	luel delivery 5	(4a) Idi	e stop
rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm\$1000 strokes	rev/min	cm ² /1000 strokes 7	rev/min 8	Control rod travel mm
LDA 1000	0,7 bar 106,5-108,5 (104,5-110,5)	1230-1240*	LDA 600	0 bar 77,5-80,5 (75,5-82,5)	100	19,0-21,0 mm RW	250	6,1
X 1000 V	90,5- 92,5	(12,0mmRW)	X 600 V	77,0-80,0				
1000	99,0-101,0	(12,5mmRW)	600	77,0-80,0				

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. \pounds 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

D. Adjustment Test for Manifold Pressure Compensator

rev/min decreasing pressure – in bar gauge pressure Testain = DAF 8,3 k 1 -2-Pump/governor Measurement Control rod travel-difference Setting Gauge pressure = Gauge pressure = bar mm (1) 12,6 - 12,7 12,2 - 12,3 11,5 - 11,8 11,2 - 11,3 0,7 2525 with 2013 DL 0,27 0,23

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 EIC 2,9 a

3. Edition

En

PES 3 A 80 D 320 RS 1288

RSV 300-1075 A 1 B 722 DR (1) RSV 300-1075 A 1 B 753 DR (2) supersedes 4.80 company Eicher

engine

EDK 3-7 (1) EDK 3-4 (2)

38 kW (52 PS) (1)

31 kW (42 PS) (2)

1 - 3 - 2 je 120°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,10-2,30) (2,15-2,25)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery (1) cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery (2) cm ^{\$/100} strokes 3	Spring pre tensioning (torque-control valve) mm 6
1050	9,4-9,5	5,3-5,4	0,2(0,35)	8,2-8,3	4,2 - 4,3	n = 1050
300 800/500	7,4-7,6 	1,1-1,5 C, Sp. 4-5	0,2(0,3) 0,3(0,4)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

(1) RSV-722 DR

										NOT TEE DI
1 Uppe	r rated speed	rev/min	Interme	diate rated	d speed	4	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm 9	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	_	-	ca.29	300	5,5	1050	9,4-9,5
	X =	5,5					100	min.19,0	685	9,5-9,7
ca.60	1090-1	100 = 8,4]				300	5,9-6,1	500	9,8-9,9
(2a)	1110-1	140 = 4,0 $0,3 - 1,7$					370-430	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	II-load stop	6 Rotational- speed limitat		iel delivery naracteristics	Starting I	uel delivery 5	(4a) Idi	e stop
Test oil to rev/min 1	emp. 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm [®] /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min 8	Control rod travel mm
1050	54,0-55,0 (52,5-56,5)	1090-1100*	800 500	48,5-50,5 (47,0-52,0) 47,5-49,5 (46,0-51,0)	100	109,5- 119,5	300	7,5

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

(2) RSV-753 DR EIC 2,9 a -2-

1 Uppe	er rated speed		Interme	diate rate	d speed	(A)	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm + 0,1
loose	800	0,3-1,0	-	-	-	ca.27	300	5,5	1050	8,2
	x = 4	4,5					100	min.19,0	905	8,5
ca.58	1105-	1100 = 7,2 1135 = 4,0 = 0,3 -1,7					300 379 -	5,9-6,1 430 =2,0	500	8,8

C. Settings for Fuel Injection Pump with Fitted Governor

9	ill-load stop	6 Rotational- speed limitat.		iel delivery paracteristics	Starting I	fuel delivery 5	4e Idle stop		
rev/min	emp. 40°C (104°F) crn³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes	rev/min 8	Control rod travel mm	
1050	43,0-44,0 (42,0-45,0)	1090-1100*	900 600	43,5-46,5 (42,5-47,5) 40,5-42,5 (39,5-43,5)	100	109,5- 119,5	300	7,5	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Testatn =

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
	·		
		,	

Notes:

En

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

20

Fost Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 EIC 2,9 a 1 3. Edition

En

PES 3 A 80 D 320 RS 1288 2 RSV 390-1000A1B 2084 R (1) 1288 RSV 300-1000A1B 2084 (2) supersedes 8.80 company Eicher

1 - 3 - 2 0-120-240° + 0,50° (0,75) engine EDK 3 (1) EDK 3-8 u. EDK 3-9

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

(1)

A. Fuel Injection Pump Settings

37 kW(50 PS) (1) 31 kW(42 PS) (2)

Port closing at prestroke

(2,10-2,30) 2,15-2,25

mm (from BDC)

6

Testoil-ISO 4113

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	mmi 2	cm³/100 strokes	mm 6
980	9,3-9,4	5,5-5,6	0,2(0,35)	8,5-8,6	4,3-4,4	n = 980
300	6,9-7,1	1,0-1,4	0,2(0,3)	7,4-7,6	1,1-1,7	

Adjust the fuel delivery from each outlet according to the values in $\ \square$

B. Governor Settings

"Z"

1 Uppe	er rated speed	rev/min	Interme	ediate rated	speed	4	Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
loose	800	0,3-1,0	-	-	•	ca.13	300	6,5	980	9,3-9,4	
ca.40	1025-1	= 1,0 $030 = 8,3$ $055 = 4,0$ $0,3-1,7$					300 100 450 335-395	6,9-7,1 min.19,0 max. 1,0 = 2,0	770 500	9,3-9,5 9,5-9,6	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop Test oil temp. 40°C (104°F)		Rotational- speed limitat		el delivery aracteristics	Starting fille "	uel delivery 5	da idle stop Control rod		
rev/min cm ¹	_	changed to .) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ⁴ 1000 strokes 7	rev/min 8	travel mm 9	
	55,5-56,5 53,5.58,0)	1020-1030*			100	109,5 - 116,5	300	7,0	

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

B. Governor Settings

without "Z" EIC 2,9 a 1 -2-

1 Uppe	r rated speed	l rev/min	Interme	Intermediate rated speed			Lower rated speed			rque control
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min	Control rod travel rnm .
loose	800 x	0,3-1,0 2,25	-	-	-	ca.17	300 300	7,0 7,4-7,6	1000 820	8,5-8,6 8,8-9,0
ca.44	1030-1	1030 = 7,5 1060 = 4,0 = 0,3 -1,7					100 475 355 -	min.19,0 max. 1,0 415 =2,0		9,2-9,3

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp. 40°C (104°F)	Rotational- speed limitat.		el delivery aracteristics	Starting f	uel delivery 5	Idle stop		
rev/min	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel mm 9	
980	43,5-44,5 (42,0-46,0)	1020-1030*	700 500	(40,5-46,5)	100	109,0 - 116,5	300	7,0	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Contro	diminution of rod travel- difference	
	Gauge pressure =	bar Gauge pressure	= bar mm	(1)	
			İ		
·					
·					

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 3,8 m 1 3. Edition

En

PES 4 A 90 D 410 RS2294 RS2294

(1) EP/RSV 350-1500 A2 B741L 575-1100 A1 618L (2)

2.79 supersedes

Daimler-Benz company OM 314

engine (1 - 51 kW - 69 PS)

**Set idle-speed auxiliary spring at 2.0 mm control-rod travel, then 1/2 turn back. All test specifications are valid for Bosch Fuel Injection Pump Test Benchés and Testers

(2 - 54 kW - 73 PS)

A. Fuel Injection Pump Settings

2,15-2,25 Port closing at prestroke(2,10-2,30)

mm (from BDC)

estoil-ISO 41

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm³/100 strokes	cm ³ / 100 strokes 4	mm 2	cm\$/100 strokes	mm 6
1450	9,1-9,2	5,2 - 5,4	0,3(0,45)	10,5	6,1 - 6,3	n = 1080 min
350	7,4,6	0,9 - 1,5	0,2(0,4)	+ 0,1 6,4-6,6	1,1 - 1,7	n = 575
				4,-		

Adjust the juel delivery from each outlet according to the values in

B. Governor Settings

741 L

Degree of deflection of control lever	r rated spee Control rod travel mm	d rev/min Control rod travel mm rev/min	Interme	ediate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm 9	(3) To	rque control Control rod travel mm 11
loose	800 X =	0,3-1,0 5,0	-	-	-	ca.21	350 100	7,5** min.19	-	-
ca.60	8,1 4,2 1600	1495-1505 1555-1570 0,3 - 1,7					350 435-495 500	7,4-7,6 = 2,0 0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp. 40°C (104°F)	Rotational- speed limitat		el delivery aracteristics	Starting findle	uel delivery 5	(4a) Idle	Control rod
rev/min	cm³/1000 strokes	changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm ⁹ /1000 strokes 7	rev/min 8	travel mm 9
1450	52,5-53,5 (50,5-55,5)	1495-1505	-	-	100	14,7-15,3	-	•
								./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

Uppe Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	Interme	ediate rated	speed 6	Control- lever deflection in degrees 7	- Lower	rated speed Control rod travel mm	IX ~ 1	rque control Control rod travel mm
loose	800	0,3-1,0			·•	ca.28	575	5,5**	-	
	×	= 2,4					100	min.19		
ca.58	9,5 1250	1110-1120 0,3 - 1,7					575 580-610 650	5,4-5,6 = 2,0 max. 1,0		

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp. 40°C (104°F)	Rotational- speed limitat.		nel delivery aracteristics	Starting f	Starting fuel delivery 5 4a Idle stop		
rev/min	cm ³ /1000 strokes	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
1080	61,5-62,5 (59,5-64,5)	1110-1120*	-	-	100	14,7-15,3	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Degree of deflection of control lever	effection travel mm mm rev/min		Intermed	Intermediate rated speed 4 5 6		Control- lever deflection in degrees 7 Lower rated speed Control rod travel mm			Torque control Control rod travel rek'min mm 10 11	
		·								
29										

C. Settings for Fuel Injection Pump with Fitted Governor

2b) Full-load stop Test oil temp. 40°C (104°F)		Rotational- speed limitat.	Sa) Fuel delivery characteristics		Starting fuel delivery 5		Idle stop	
rev/min 1	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
	·							
			,					

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 3,8 n 6 2. Edition

<u> 50</u>

PES 4 A 90 D 410 RS 2570

ROV 300-1400 AB 1065-3DL

supersedes

5.81 Daimler-Benz

company:

OM 314

engine:

57 kW (77 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,20-2,30) mm (from BDC)

Rotational speed ray/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
1400	10,5+0,1	5,9-6,0	0,3(0,45)			
300	8,3-8,5	0,9-1,5	0,2(0,4)			
400	11,3+0,2	C, Sp. 44.5	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed		Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm 2	III AVOI	(a) (2a)	of control	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	1 mm 11
max.	1650 9,5	15,2-17 0 - 1 1440-145 1535-156	,0 50	-	-	-	ca.24	300	min.10,0 8,3-8,5 605 =	600	0,7-0,9 3,3-3,8 5,2-5,3 7,7
							3 a)				

Torque control travel a =

1,0 mm

Set the stop screw to control-rod travel 3 - 3,5 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

Control-ro	load delivery Rotational-speed 2b Fuel delivery troi-rod stop toil temp. 40°C (104°F) 2 intermediate speed			Starting idle switchir		Torque-control 5		
rev/min		rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	1	rev/min 8	Control red travel mm
1400	59,0-60,0 (57,0-62,0)	1440-1450*	400	44,0-46,0 (42,0-48,0)	100	72,25-82,25 -220 (80-240)	1400 1000 600 400	10,5+0,1 10,8+0,3 11,1+0,2 11,5+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 FIA 5,5 c 1. Edition

supersedes

RQV 300-1500 AB1152 L

company:

8060.04.661

FIAT

engine:

81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

PES 6 A 90 D 410 RS 2633

A. Fuei Injection Pump Settings
2,2-2,3
Port closing at prestroke
(2, 15-2, 35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	9,0-9,1	4,9-5,0	0,3(0,45)			
300	8,2-8,4	1,1-1,7	0,2(0,4)			
	•					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermedia	te rated sp	eed	Lower rated	speed	1	Sliding s	leeve travel
	rev/min Control	Control rod (travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		0
	rod travel	mm rev/min (of control lever	rev/min		l of control lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max. ca.59	1470 8,0 4,0	15,2-17, 1540-155 1635-166	0 5	-	-	ca.17	300	min.9,0 8,2-8,4 max. 1,0		
	1800	0 - 1,	0			330-430 3a				

0,6 mm Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

	d stop np. 40°C (104°F) 2	limitation intermediate speed	high idle s	pery characteristics 5a poed 5b	idle switchin	ng point	Torque- travei	Control 5 Control rod travel
rev/min	cm ³ /1000 strokes ·	rev/min 3	rev/min 4	5	6	7	8	9
1500	48,5-49,5 (46,5-51.5)	1540-1550*	-	-	100	99,25-119,25 at 16,0- 16,6 mm RW	500 860	9,0+0,1 9,6+0,1 9,4+0,2 9,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (3) and Governors

VDT-WPP 001/4 MB 2,0 a 1 1. Edition

PES 4 M 50 C 320 RS14

EP/MN 60 M 28 DR

supersettes

company: engine: Daimler-Benz OM 615

(Schweden)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 mm (from BDC)

(1.65-1.85)

× 1		(1,00-1,00		, 	1	
Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
rev/min		3	4	5	6	7
2000	13,0	3,1-3,3	0,2(0,25)			
	(+0,1)					
250 1600/1000	9,1 (±0,1) Sect. (0,4-1,0 c, col. 4-6	0,15(0,2) 0,25(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

			Control-rod travel limitation breakaway*				Auxiliary spring auxiliary cam**		Torque control	
Torque control travel	Vacuum pressure drop			Control rod travel		Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel
mm 1	mm water col.	l	mmw.c. 4	mm 5	mmw.c. 6	mm 7	mmw.c. 8	mm 9	mm w.c. 10	mm 11
0,7+0,1	500-480	10	470	13,0	510 550			9,9-10,8 9,0-10,0	150 325	13,7-13,8 13,1-13,5
ļ			490-	510*		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,,,,,,,,,,	470	13,0-13,1
= rotational sp adjust breaks	vel test (cols. 4- need 500 rev/mii way (cols. 4-5) i nnt (B _. 8-9 - C 7-	n. by mean	s of shim eans of sl	s* nims**						

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load : Test oil te	Full-load stop screw Test oil temp. 40°C (104°F)			very character	istics	idle (stop id le (imb		Control road travel from full-load to lidle	
rev/min	Vacuum mm wat. col.	cm ³ /1 000 s trokes 3	rev/min 4	Vacuum mm wat. col. 5	cm³/1000 strokes 6	rev/min 7	Vacuum mm wat. col.	mm cm³/1000 strokes 8	
2000	470	31,7-32,7 (30,7-33,7)	1600	300	29,4-30,9 (28,4-31,9)	500	525	2,0-3,0	
			1000	135	29,4-30,9 / (28,4-31,9)	250	ca.550	4,5-10,5	
							-		

Checking values in brackets

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 HAN 10,8 h 3. Edition

En

PE 6 A 95 D 320 RS 2557 EP/RSV 350-1100 A8B1117DR

supersedes 2.81

company MF-Hanomag

engine D 962

** Test cold-start device according to VDT-I-DAF 001, page 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25 Port closing at prestroke (2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1100	10,0+0,1	9,1 - 9,3	0,3(0,6)			
400	7,9-8,1		0,3(0,5)			-
700	10,5+0,2	C, 4-5	0,4(0,7)	•		
500	10,6+0,1					

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

(1) Uppe	er rated speed	1 rev/min	Interme	ediate rate	ed speed	4	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm
loose	l	0,3-1,0	-	_	_	ca.23	400	7,5		
ca.52	1140-11	4,50 50 = 9,0 95 = 4,0					100 400 580-640 700	min.19 7,9 19 = 2,0 0 - 1	960 500	10,0+0,1 10,2+0,2 10,6+0,1
2 a		0,3-1,7					700	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

U	ill-load stop	Rotational- speed limitat		uel delivery naracteristics	Starting Idle	fuel delivery 5	(4a) idle stop	
rev/min	emp. 40°C (104°F) cm ² /1000 strokes 2	Note. changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm ⁹ /1000 strokes 7	rev/min 8	Control ro travel mm
1100	89,0-91,0 (87,0-93,0)	1140-1150*	700	93,0-96,0 (91,0-98,0)	100	19-21mmRW **	400	8,0
			500	83,5-86,5 (81,5-88,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

10.81

BOSCH

Festoil-ISO 4113

WPP 001/4 MB 2,0 e

1. Edition

PES 4 M 50 C 320 RS59

EP/MN 60 M 52 DR

supersedes

company

Daimler-Benz

OM 615 engine

(Schweden)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke

mm (from BDC) 1,70-1,80 (1,65-1,85)

max. RW

				-		
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	ww	cm 1/100 strokes	mm
1	2	3	4	5	6	7
2000	13,0	3,1-3,3	0,2 (0,25)			
	(+0,1)					
	9,1					
250	(±0,1)	0,4-1,0	0,15(0,2)			
1600/1000	Sect.	c, col. 4-5	0,25(0,3)			,

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	Leakage		Control- limitation breakay				Auxiliary spring auxiliary cam**		Torque control	
Torque control travel		Time at least		Control rod travel		Control rod travel	Vacuum	Control rod travel		Control rod travel
mm	mm water col.	s	mmw.c.	mm	mm w.c.	mm	mmwc	mm	mmw.c.	mm
1	2	3	4	5	6	7	8	9	10	11
0,7+0,1	500-480	10	470	13,0	1	7,2-13,0	5 4 0	10,0-11,0	470	13,0-13,1
1			520-	540*	600	0,3-6,5	650	9,3-10,3	325	13,2-13,5
520-540* control rod travel test (cols. 4-11) = rotational speed 500 rev/min. adjust breakaway (cols. 4-5) by means of shims* cam adjustment (B 8-9 - C 7-8) by means of shims*				•			•	150	13,7-13,8	

C. Settings for Fuel Injection Pump with Fitted Governor

	stop screw emp. 40°C (104°	F)	Fuel deliv	ery character	stics	idle (stop idle (imb		Control road travel from full-load to lidle
rev/min	Vacuum mm wat. col. 2	cm ³ /1000 strokes 3	rev/min 4	Vacuum mm wat. col. 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat. col	mm cm ³ /1000 strokes 8
2000	470	31,7-32,7 (30,7-33,7)	1600	300	29,4-31,0 (28,4-32,0)	500	550	2,0-3,0
		ı	1000	135	29,4-31,0 (28,4-32,0)	250	700	4,5-10,5

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 2,0 f

Edition

PES 4 M 50 C 320 RS 14 RS 59 EP/MN 60 M 34 DR (1) M 34 DR (2) supersedes

Daimler-Benz

company engine

OM 615

HHF-Transporter (1) NG -Transporter (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 mm (from BDC)

18 mm RW

		(1,00-1,00	/			
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	5	6	7
2000	13,2	3,2-3,4	0,2(0,25			
	(+0,1)					
250	9,0-9,2	0,4-1,0	0,15(0,2)			
1600/1000	Sect.	col. 4-6	0,25(0,3)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

	Leakage		Control limitation breakay		Control			spring cam**	Torque control	
Torque control travel	Vacuum pressure drop			Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel
mm	mm water col	s	mmwc	mm	mmw.c.	mm	mmwc	mm	mm w.c.	mm
1	2	3	4	5	6	7	8	9	10	11
1,2+0,1	500-480	10	500	13,2	540	7,0-13,2	650	9,4-10,4	500	13,2-13,3
	vel test (cols. 4- eed 500 rev/mi		520	- 540*	650	0 - 3,6	800	ca. 8,5	250	13,2-13,5 14,1-14,5 14,4-14,5
adjust breakay	way (cols. 4-5) I int (B 8-9 - C 7-	by mean:								

C. Settings for Fuel Injection Pump with Fitted Governor

	stop screw mp. 40°C (104°	F)	Fuel deli	very character	istics	idle (stop idle (imb		Control road travel from full-load to lide
rev/min	Vacuum mm wat. col 2	cm ³ /1000 strokes 3	rev/min	Vacuum mm wat. col. 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat col	mm cm ³ /1000 strokes 8
2000	500	32,7-33,7 (31,7-34,7)	1600	300	31,4-33,0 (30,4-34,0)	500	550	2,2-3,2
			1000	135	31,9-33,5 (30,9-34,5)	250	700	4,5-10,5

Checking values in brackets

40

VDT-WPP 001/4 MB 2,0 c 3. Edition

En

PES 4 M 50 C 320 RS14 EP/MN 60 M 32 D

supersedes

company engine 3.76 Daimler-Benz OM 615

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 (1,65-1,85)

mm (from BDC)

at max. RW

		(1,00 .,00)				
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ / 100 strokes	Control rud travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1	2	3)	4	5	6	7
2250	13,3	3,3-3,5	0,2 (0,25)			
	(+0,1)					
250	9,1	0,4-1,0	(2.2)			
1600/1000	(±0,1) Sect. (c, col. 4-6	0,15(0,2) 0,25(0,3)			

Adjust the fuel delivery from each outlet according to the values in [______

B. Governor Settings

	Leakage		Control-rod travel limitation breakaway*		Control			Auxiliary spring auxiliary cam**		Torque control	
Torque controi travel	Vacuum pressure drop			Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel	
mm	mm water col.	s	mmw c.	mm	mmw.c.	mm	mm w c.	mm	mmw.c.	mm	
1	2	3	4	5	6	7	8	9	10	11	
0,6+0,1 !	500-480	10	490	13,3		8,8-13,3 2,0-7,7	600 700	10,1-11,1 9,3-10,3	75 175	3,8-13,9 3,4-13,7	
= rotational sp adjust breaka	ontrol rod travel test (cols. 4-11) rotational speed 500 rev/min. idjust breakaway (cols. 4-5) by means of shims* iam adjustment (8 8-9 - C 7-8) by means of shims*								300 490	13,3-13,4 13,3-13,4	

C. Settings for Fuel Injection Pump with Fitted Governor

	stop screw mp. 40°C (104°	F)	Fuel deli	very character	stics	idle (sto) idle (imb		Control road travel from full-load to
rev/min 1	Vacuum mm wat col cm³/1000 strokes 2 3		rev/min mm wat. col. cm³/10		cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat. col.	mm cm ³ /1000 strokes 8
2250	490	33,7-34,7 (32,7-35,7)	1600	350	30,4-32,0 (29,4-33,0)	500	530	2,0- 3,0
			1000	125	29,4-31,0 (28,4-32,0)	250	ca. 800	4,5-10,5

Checking values in brackets

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VDT-WPP 001/4 MB 2,0 d

4. Edition

n

2.76

company

supersedes

Daimler-Benz

engine

OM 615

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

PES 4 M 50 C 320 RS59

1,70-1,80

mm (from BDC)

EP/MN 60 M 45 DR

EP/MN 60 M 49 DR

(1	,65-	1,85	Ì
----	------	------	---

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm 1/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 5	Fuel delivery cm ¹ /100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
2000	13,2	3,2-3,4	0,2 (0,25)			
	(+0,1) 9,1					
250 1600/1000	(±0,1) Sect.	0,4-1,0 C, col. 4-5	0,15(0,2) 0,25(0,3)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

	Leakage		Control limitation breakay		Control			spring cam**	Torque control	
Torque control travel	Vacuum pressure drop	Time at least		Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel
mm	mm water col.	s	mmw c.	mm	mmwc	mm	mmwc	mm	mmw.c.	mm
1	2	3	4	5	6	7	8	9	10	11
1,2+0,1	500-480	10	500	13,2		6,8-13,2 0 - 3,6	575 650	9,8-10,8 9,3-10,3		14,4-14,5 14,2-14,5
control rod tray	vel test (cols. 4-	11)	520	- 540		0 - 5,0	030	3,5-10,5	400	13,2-13,5 13,2-13,3
= rotational sp adjust breakay	eed 500 rev/mir vay (cols. 4-5) I nt (B 8-9 - C 7-	n. by mean:			<u> </u>					10,2 10,0

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load s Test oil te	stop screw mp. 40°C (104°	F)	Fuel deli	very character	istics	idle (stop idle (imb		Control road travel from full-load to	
rev/min	Vacuum mm wat col 2	cm³/1000 strokes 3	rev/min	Vacuum mm wat. col. 5	cm³/1000 strokes 6	rev/min 7	Vacuum mm wat, col.	mm cm ³ /1000 strokes 8	
2000	500	32,7-33,7 (31,7-34,7)	1600	300	31,4-33,0 (30,4-34,0)	500	550	2,2- 3,2	
			1000	135	31,9-33,5 (30,9-34,5)	250	700	4,5-10,5	

Checking values in brackets

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VDT-WPP 001/4 MB 2,0 a

4. Edition

PES 4 M 50 C 320 RS14

EP/MN 60 M 25 DR

supersedes company

RS14Z

EP/MN 60 M 25 DR ./.

En

engine

3.76 Daimler-Benz

OM 615 (200 D)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,7°-49€0 mm (from BDC) (1,65-1,85)

max. Control rod travel

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ¹ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 5	Fuel delivery cm ¹ /100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
2000	13,2	3,2-3,4	0,2 (0,25)	12,6	2,9-3,1	
250 1600/1000	(+0,1) 9,1 (±0,1)	0,4-1,0 C, col. 4-6	0,15(0,2) 0,25(0,3)	(+0,1) 9,1 (±0,1)	0,4-1,0	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

25 DR with S14

	_							23 511 1		
	Leakage		Control-rod travel limitation breakaway*				Auxiliary spring auxiliary cam**		Torque control	
Torque control travel	Vacuum pressure drop	Time at least		Control rod travel		Control rod travel	ol rod Vacuum Control travel		Vacuum	Control rod travel
mm	mm water col.	s	mmw c.	നന	mm.w.c.	mm	mmwc	mm	mm w.c.	mm
1	2	3	4	5	6	7	8	9	10	11
1,2+0,1	500-480	10	470	13,2	510 - 550	7,2-13,2	550 625	9,8-10,8 9,3-10,3	150 225	14,4-14,5 14,1-14,5
			490	- 510*	330	1,5- 0,5	023	3,3-10,3	400 470	13,2-13,5
= rotational sp adjust breakav	490 - 510* ontrol rod travel test (cols. 4-11) rotational speed 500 rev/min. djust breakaway (cols. 4-5) by means of shims* am adjustment (88-9 - C 7-8) by means of shims*								470	13,2-13,3

C. Settings for Fuel Injection Pump with Fitted Governor

	stop screw mp. 40°C (104°	F)	Fuel deliv	very characteri	estics	idle (stop idle (imb		Control road travel from full-load to idle	
rev/min	Vacuum mm wat. col 2	cm ³ /1000 strokes	rev/min Vacuum cm 4 5 6		cm³/1000 strokes 6	rev/min 7	Vacuum mm wat col	mm cm ³ /1000 strokes 8	
2000	470	32,7-33,7 (31,7-34,7)	1600	00 300	31,4-32,9 (30,4-33,9)	500	510	2,2- 3,2	
			1000	135	31,9-33,4 (30,9-34,4)				
					(30,5*54,47	250	ca. 800	4,5-10,5	

Checking values in brackets

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4.77

K10

	Leakage		Control-rod travel limitation breakaway*		Control			spring cam**	Torque control	
	Vacuum pressure drop	Time at least		Control rod travel	Vacuum	Control rod trayel	Vacuum	Control rod travel	Vacuum	Control rod travel
mm	mm water col	s	mmwc	mm	mm w c	mm	mmwc	mm **	mmwc	mm
1	2	3	4	5	6	7	8	9	10	11
1,2+0,1	500-480	10	470	12,6	510	7,0-12,6	550	10,0-11,0	150	13,7-13,8
					550	1,6-8,7	625	9,5-10,5	225	13,4-13,7
control rod tra	ontrol rod travel test (cols 4-11) rotational speed 500 rev/min								400 470	12,6-12,9

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load s Test oil te	stop screw mp 40°C (104°	FI	Fuel deliv	very character	stics	idle (stop idle (imb		Control road travel from full-load to lidle	
rev/min 1	Vacuum mm wat col	cm ¹ /1000 strokes	rev/min	Vacuum mm wat col 5	cm '/1000 strokes 6	rev/min 7	Vacuum mm wat col	mm cm*/1000 strokes 8	
2000	470	29,7-30,7 (28,7-31,7)	1600 1000	300	28,4-29,9 (27,4-30,9)	500	525	1,5-2,5	
			1000	135	28,9-30,4 (27,9-31,4)	250	ca.800	4,5-10,5	

Checking values in brackets

Testoil-ISO 4113

WPP 001/4 MB 2,2 a 1

2. Edition

PES 4 M 55 C 320 RS 47

EP/MN 60 M 36 DR

supersedes

company engine

s.u. Daimler-Benz OM 615 HHF

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 (1,65-1,85)

mm (from BDC)

mm 7
7

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	Leakage		Control- limitation breakay		Control		Auxiliary auxiliary		Torque control		
Torque control travel	Vacuum pressure drop	Time at least		Control rod travel		Control rod travel	Vacuum	Control rod travel		Control rod travel	
mm	mm water col	s	mmw.c.	mm	mmwc	mm	mm w c	mm	mm w.c.	mm	
1	2	3	4	5	6	7	8	9	10	11	
0	500-480	10	45°	12,9	490 525	6,2-12,9 1,0- 8,6	525 625	10,7-11,7 9,9-10,9	-	-	
= rotational sp adjust breakay	vei test (cols. 4- eed 500 rev/mir way (cols. 4-5) i nt (8 8-9 - C 7-	n by mean	s of shim				,				

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load s Test oil te	stop screw mp. 40°C (104°	F)	Fuel deli	very character	stics	idle (stop idle (imb		Control road travel from full-load to idle	
rev/min	Vacuum mm wat: coi	cm ³ /1000 strokes 3	rev/min 4	Vacuum mm wat. col 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat col	mm cm ³ /1000 strokes 8	
1750	450	34,7-35,7 (33,7-36,7)				500	500	1,0- 2,0	
						250	ca.500	4,5-10,5	

Checking values in brackets

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 EIC 2,9 b

1. Edition

En

PES 3 A 90 D 320 RS 2626

RSV 300-1075 A 1 B 2146 R

supersedes

company

engine

Eicher EDL 3-5

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing seprestroke (2,15-2,35)

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm³/100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ⁹ /100 strokes 3	mm 6
1075	12,4+0,1	8,3 - 8,4	0,2(0,45)			
300	6,9-7,1	0,7 - 1,3	0,2(0,4)			
500	13,4+0,1	C,Sp 4 u. 5	0,3(0,55)		`	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	r rated speed	l rev/min	Interme	diate rate	d speed	4	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm 9	rev/min	Control rod travel mm
loose	800 X =	0,3-1,0 5,0	-	•	•	ca.27	300 100	6,5 min.19,0		12,4+0,1 12,8+0,2
ca.60	11,4 4,0 1330	1115-1125 1160-1190 0,3 - 1,7					300 385 - 445	6,9-7,1 = 2,0mm	500	13,4+0,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(a)	ill-load stop	6 Rotational- speed limitat	33 Fu	iel delivery aracteristics	Starting f	uel delivery 5	(4a) Idi	e stop
rev/min	emp. 40°C (104°F) cm ² /1000 strokes 2	Note: changed to .) rev/min 3	rev/min	cm ³ /1600 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8_	Control rod travel mm 9
1075	83,0 - 84,0 (81,0 - 86,0)	1115-1125*	500	83,0 - 84,0 (81,0 - 88,0)	100	19,0-21,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.81

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 6,2 k 1

2. Ausgabe

PE 6 A 85 D 320 RS 2546

RSV 250-1300 A 1 B 2025 R

supersedes

7.81

company

DAF DF 615

See Service Information VDT-I-DAF 004

engine

Port closing difference between

control-rod travel 9 and controlrod travel $21 = 3,0-4,0^{\circ}$ camshaft

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25 (2,1-2,3)

mm (from BDC)

at RW 9

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ⁴ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	10,2+0,1	5,5 - 5,6	0,3(0,45)			
250	7,3-7,7	1,4 - 1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in \Box

B. Governor Settings

Uppe	r rated speed	d rev/min	Interme	diate rated	speed	(4)	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm 9	rev/min	Control rod travel mm
loose	800 x =	0,3-1,0 4,0	-	-	_	ca.21	250 100 250	min.19,0	1000 400 300	10,2+0,1 10,2+0,2
ca.67	9,2 4,0 1540	1340-1350 1355-1385 0,3 - 1,7					310-370 600	5,9-6,1 = 2,0 max. 1,0	300	10,3+0,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat		iel delivery aracteristics	Starting f	uel delivery 5	Idle stop		
rev/min	emp. 40°C (104°F) cm²/1000 strokes 2	changed to) rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm³/1000 strokes 7		travel mm	
1000	55,0-56,0 (53,0-58,0)	1340-1350*	-	-	100	19,0-21,0	_	-	

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Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 EIC 5,9 a
5. Edition

En

PES 6 A 80 D 320 RS 1280

RSV 300-1150 A0B 2005 R

supersedes 4

4.80 Eicher

company engine

EDK 6-5 Turbo 98 kW (133 PS)

1 - 5 - 3 - 6 - 2 - 4 je 60°

All test specifications are valid for Bosch Fuel Injection Pump Vint Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,10-2,30) 2,15-2,25

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes 3	cm ⁹ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1130	10,6-10,7	6,4 - 6,5	0,2(0,35)			
300	7,4 - 7,6	1,3 - 1,9	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interme	diate rated	speed	4	Lower	rated speed	(3) to	rque control
Degree of deflection	travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of Control lever	mm 2	mm rev/min 3	4	5	6	deflection in degrees 7	rev/min 8	9 9	rev/min 10	11
loose	800	0,3-1,0	-	_	_	ca.30	300	5,5		
	Χ =	6,0					100	min.19,0		
ca.54	1170-1	180= 9,6	1				300	5,9-6,1		
2a	1230-1	260=4,0	}				495-555	= 2,0		
	1425=0	,3 - 1,7					650	01		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Fu	ill-load stop	6 Rotational- speed limitat		iel delivery iaracteristics	Starting t	Starting fuel delivery 5 4a Idle sto		
Test oil te rev/min 1	emp. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to) fev/min 3	rev/min 4	cm\$1000 strokes	rev/min 6	cm ² /1000 strokes 7	rev/min 8	Control root travel mm
1130	65,0-66,0 (63,5-67,5)	1170-1180*			100	16,0-16,6	300	7,5

Checking values in brackets

* 1 mm less control rod travel than col 2

12.81

BOSCH

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 EIC 3,9 e

2. Edition

En

PES 4 A 80 D 420 RS 1277 Z

RSV 300-1000 A 1 B 643 DR

supersedes company 8.80 Eicher

1 - 2 - 4 - 3 0 -90 -180-270 engine

EDK 4-8 u. EDK4-1'48 kW (65 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,10-2,30) 2,15-2,25

mm (from BDC)

Festoil-ISO 4113

Rotational speed rev/min 1	Control rod travei mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
980	9,3-9,4	5,2 - 5,3	0,2(0,3)			
300	7,4-7,6	1,1 - 1,5	0,2(0,3)			
800/500		C,Sp. 4-5	0,3(0,4)			
			,			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed	tev/min	Interme	ediate rated	speed	(4)	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm 9		Control rod travel mm
loose		0,3-1,0 5,25	-	-	-	ca.27	300 300	5,5 5,9-6,1	980 810	9,3-9,4 9,6-9,8
ca.55	1020-1 1040-1	030 = 8,3 070 = 4,0 1,3 - 1,7					100 370-430	min. 19 = 2,0	500	9,9-10,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Fu	ill-load stop	6 Rotational- speed limitat	(3a) Ft	iel delivery paracteristics	Starting t	luel delivery 5	(4a) idi	e stop
Test oil to rev/min 1	emp. 40°C (104°F) cm ³ /1000 strokes 2	Note. changed to) rev/min 3	rev/min	cm ⁹ /1000 strokes	rev/min	cm³/1000 strokes	rev/min_ 8	Control rod travel mm 9
980	52,5 - 53,5 (51,0 - 55,0)	1020-1030*	800	51,5-54,5 (50,0-56,0)	100	16,5-17,1 mm RW	300	6,0
			500	49,5-51,5 (48,0-53,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 EIC 5,9 b 2. Edition

En

PES 6 A 80 D 320 RS 1280 RSV 300-1150 A0B 2001 DR

supersedes

4.80 Eicher

1 - 5 - 3 - 6 - 2 - 4 je 60°

company engine

EDK 6-4 Engine suction 77 kW (105 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,10-2,30) 2,15-2,25

mm (from BDC)

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Rotational speed rev/min 1	Control rod travel	Fuel delivery cm ² /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm\$100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	8,9-9,0	5,1 - 5,2	0,2(0,35)			
300	6,1-6,3	0,7 - 1,3	0,2(0,3)			
900/500		C, Sp 4-5	0,3(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interme	diate rated	speed	4	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 X =	0,3-1,0 5,25	-		-	ca.26	300 100	5,7 min.19,0	130 785	8,9 9,2
ca.50	1205-1	180=7,9 235=4,0 ,3-1,7					300 485-545 650	6,1-6,3 = 2,0 max. 1,0	500	9,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Fu	ill-load stop	Rotational- speed limitat.		uel delivery naracteristics	Starting t	uel delivery 5	4a) Idi	e stop
Test oil to rev/min 1	emp. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm ² /1000 strokes 7	rev/min 8	Control rod travel mm 9
1130	51,5-52,5 (50,0-54,0)	1170-1180*	900 500 .	48,5-51,5 (47,0-53,0) 46,5-48,5 (45,0-50,0)	100	16,3-16,9	300	6,2

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Test Specifications 2 Fuel injection Pumps 2 wpp 001/4 KHD 6,1 g and Governors

6. Edition

estoil-ISO 4113

PES 6 A 85 D 410/3 RS 2415 Komb.-Nr. 0 400 856 024

RQ 300/1250 AB 935 DL

9.85 supersedes KHD

company:

BF 6 L 913 T

engine: 96 kW

at 2500 min -1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1.85-2.05) Port closing at prestroke

mm (from BDC)

• .		1,00-2,007				
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,1+0,	8,0 - 8,1	0,3(0,45)			
300	8,3-8,5	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

. '	Checking of slider Full-load speed Setting point Control and		-			Idle spec	-		cifications (5)	Torque control		
rev/min	Control rod travel mm		Control rod travel rnm 4	Control red travel rnm 5	rev/min		Control red travel mm 8		Control rod travel mm	rev/min 11	Control rod travel)
800	19,2-20,8	800	20,0	11,1	1295-1310	300	8,4	100 ı	nin.9,8	1250	12,1-12,	,2
VH =	max. 46°			4 , 0 1500	1370-1400 0 - 1,0			l	8,3-8 ,5 10=2,0	ļ	13,3-13, 3,0-13,	
										1050	12,4-12,	,7

Torque-control travel

Speed regulation: At 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	very characteristics	11_11	Starting fuel delivery Idle speed		
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes / mm 7		
1250	80,0 - 81,0 (78,0 - 83,0)	-	800	85,0-87,0 (82,5-89,5)	100	195,0 - 115,0 (102,0 - 118,0)		

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP CO1/4 KHD 8,8 a 1

_ 1. Edition

Testoil-ISO 4113

PES 4 A 95 D 410 RS 2424

RQ 300/1250 AB 1133 L

supersedes

company: TAM

engine: F 4 L 413 FR 94 kW (128 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1.7-1

mm (from BDC)

Rotational speed	travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	9,7-9,8	9,1-9,3	0,3 (0,6)			
300	5,9-6,1	0,9 - 1,5	0,3 (0,5)			
750 500	10,1+0,2	C,Sp. 4 u. 5	0,4 (0,7)			·
	•,					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ck 1	Full-load	-	-	cifications (4)	Idle spec	•		cifications (5)	Torque control		
	Control rod travel mm 2	rev/min 3	Control red travel rnern 4	Control red travel mm 5	rev/min 6	rev/min 7	Control red travel		Control rod travel mm		Control rod travel mm	
600	15,6-16,4	600	16,0	8,7 4,0 1450	1290-1300 1350-1380 0-1,0	300		300 390 - 4	min. 7,5 1 5,9-6,1 50=2,0 mm ax.1,0	600 1 830	9,7-9,8 0,1-10,2 9,9-10,1 9,7-10,0	
	ontrol travel	sion a =	0,2	mm	Spe	ed regula	tion: At	1290-	1300 min ⁻¹		1 mm less contro	

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting Idle spec	. —
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Central rad travel cm ³ /1000 strokes / mm
1250	89,5 - 91,5 (87,5 - 93,5)	-	750	89,5 - 92,5 (87,5 - 94,5)	100	119,0 - 129,0 bei 14,0-14,6
			500	81,0 - 84,0 (79,0 - 86,0)		mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 DAF 8,3 i 1

3. Edition

En_

PE 6 A 90 D 410 RS 2524

RSV 250-1200 A 5 B 2012 DL

· supersedes

12.80

company

DAF DH 825

** Cold start test on EP/RSV governor according to Service Information

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,25-2,45)

2.30-2.40 RW 9 mm (from BDC)

Port closing difference between control-rod travel 9 and max. 4,5-5,5°

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ² /100 strokes 3	Difference cm³/ 100 strokes 4°	Control rod travel mm 2	Fuel delivery cm\$100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,4-9,5	7,0-7,1	0,3(0,45)			
250	6,5-6,7	0,9-1,5	0,3(0,4)			·
	j					
<u> </u>						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed	fev/min	Interm	ediate rate	d speed	(4)	Low	er rated speed	(3) 10	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca.16	250	5,5	1000	9,4-9,5
	X =	3,0					100	min.19	400	9,4-9,6
ca.49	1260-12	250 = 8,4 290 = 4,0 0,3-1,7				580-640	250 725	5,9-6,1 max.1,0	300	9,5+0,5

The numbers denote the sequence of the tests

C. Settings for Fue! Injection Pump with Fitted Governor

(2b) Fu	li-load stop	6 Rotational- speed limitat		el delivery aracteristics	Starting 1	uel delivery 5	4a idle stop	
Test oil te rev/min 1	emp. 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ² /1000 strokes 7	rev/min 8	Control rod travel mm
1000	70,0-71,0 (68,0-73,0)	1240-1250*	•	-	100	19,0-21,0 **	-	-

Checking values in brackets

BOSCH

^{* 1} mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 5,7 v

2. Edition

PES 6 A 90 D 410 RS 2596

RQV 300-1400 AB 1066 DL

supersedes 10.79

company: engine:

Daimler-Benz

OM 352 A

124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,00-2,10 Port closing at prestroke (1,05-2,15)

mm (from BDC)

Cv1. 6

Retational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ² /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1400	11,4-11,5	7,3-7,5	0,3(0,45)			
300	8,2- 8,4	0,9-1,5	0,2(0,4)			
500/500	-	C, 4-5	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	peed			Intermediate	rated sp	eed	Lower rated	speed	1	Stiding s	leeve travel
Degree of deflection	rev/min Control	Control rod travel	(1a)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travei	. 0	
of control lever	rod travel mm	mm * rev/min	(2a)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm ③	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ca.68	1400	15,2-17	,8	· -	_	-	ca.15	100	min.9,8	300.	1,2-1,3
	750	0 - 1						300 730-	8,2-8,4 790=2,0	485 1470	2,4-2,6 8,3
ca.	10,4	1460-147	70				400-460				•
		1585-161					3				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rot Test oil ten rev/min	stop	Rotational-speed (2b) limitation intermediate speed rev/min	high idle s	very characteristics 5e poed 5b cm³/1000 strokes	Starting Idle switchin		Torque- travel	Control od travel mm
1	2	3	4	5	6	7	8	9
LDA 1400	0,35 bar 72 ₅ 5-74,5 (70,5-76,5)	1460-1470*	LDA 500 LDA 500	0,35 bar 67,5-69,5 (65,5-71,5) 0 bar 52,0-54,5 (50,5-56,5)	100 100 -	72,25-82,25 220 (80-240)	1220 1000	11,4-11,5 11,5-11,8 12,1-12,3 11,5-11,8

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

MB 5,7 v

-2-

13	
41	
50	
Festo	

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2596 with 1066	0,35		12,5 - 12,6
		0,25	12,1 - 12,2
		0,10	11,3 - 11,5
		0	11,1 - 11,2

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

K23

Test Specifications Fuel Injection Pumps ① and Governors

WPF 001/4 KHD 6.1 i

5. Edition

E

PES 6 A 85 D 410/3 RS 2415 Komb.-Nr. 0 400 836 023 RQV 300-1250 AB 1131 L

supersedes 3.84 companyKHD engine BF 6 L 913 T 96 KW at 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC) 85-2.05) Control rod travel Rotational speed **Fuel delivery** Control rod travel Difference Spring pre-tensioning (torque-control valve) **Fuel delivery** cm³/ cm³/100 strokes rev/min mm 100 strokes cm³/100 strokes 1250 12,0+0,1 7,8 - 7,90,3(0,45)0.9 - 1.5300 8,3-8,5 0,2(0,4)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s Degree of deflection of control lever	rev/min Control rod travel	Control rod travel mm rev/min (28)	Intermediate Degree of deflection of control lever	rated speries rev/min	Control rod travel mm 4	Lower rated Degree of deflection of control lever	speed rev/min 8	Control rod travel mm 3		mm
max. ca. 65	1385 11,0 4,0 1525	15,2-17,8 1290-1300 1400-1430 0-1,0	-	-		ca. 17 450-550 3	300 645-2	min. 10,0 8,3-8,5 705 =2,0	580	0,9~1,1 3,9-4,1 5,4-5,6 7,8

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roa Test oil ten		intermediate speed	high idle s	very characteristics 5e poed 5b	Starting Idie awitchia		Torque- travel	control 5	
rev/min 1	cm ³ /1000 strokes . 2	rev/min 4a	rev/min 4	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min 8	travel mm	
1250	78,0-79,0 (76,0-81,0)	1290-1300*	600	71,5-73,5 (69,0-76,0)	100	105,0-115,0 102,0-118,0) =17,4- 17,8 mm RW	600	12,0+0, 12,8+0, 12,3+0,	

Checking values in brackets

* 1 mm leas control rod travel than col. 2

9.85

BOSCH

Geschäftsbereich KM. Kundendienst. Kfz-Ausrüstung. C by Robert Bosch GmbH, D-7 Stuttgart 1, Posifisch 50 Printed in the Federal Republic of Germany. Imprime en République Féderale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 011/4 - 0MB 1. Edition

supersedes

ROV 325-1050 AB 979 DL

company

OM-Brescia

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25 Port closing at prestroke (2,10-2,30)

PES 6 A 90 D 410 RS 2458

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,9+0,1	7,8-7,9	0,3(0,45)			
325	7,5-7,7	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	speed			Intermediate rated speed			Lower rated	speed			Sliding sleeve travel	
Degree of deflection of control	rev/min Control rod travel	Control rod travel	(e)	Degree of deflection of control		Control rod travel	Degrae of deflection of control		Control root travel			0
lever	mm 2	rev/min ((28)	lever 4	rev/min 5	mm (4)	lever 7	rev/min 8	mm (<u></u> 3)	rev/min 10	mm 11
 	+	3		7				-				
max.	1050	15,2-17	,8	-	-	-	ca.18	100	min.10			1,4-2,4
	 								16,0-6,			4,0-4,5
ca.66	9,9	1090-11						1	500= 2,	0	800	5,6-6,0
į	4,0	1150-11	80					700	max.1,	0	1050	8,2
1 1	1300	0 - 1	,0	}		İ	350-450					
							3a					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		limitation intermediate speed			Starting Idle switchin	<u> </u>	Torque- travel	Control coctravel
rev/min	cm ³ /1000 strokes .	rev/min 44	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1050	78,0-79,0 (76,0-81,0)	1090-1100*	500	66,0-69,0 (64,0-71,0)	100 -	15,0-15,6 mm RW	-	-
		·						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 5.7 x

2. Edition

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1140 L ROV 300-1400 AB 1141 L ROV 300-1400 AB 1142 L

4.81 supersedes

Daimler-Benz company: OM 352 A engine:

124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings 2,15-2,25
Port closing at prestroke (2,10-2,30) mm mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,4-7,5	0,3(0,45)			
300 500	7,6-7,8 10,4+0,1		0,2(0,4) 0,4(0,55)			
	Ì			1		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..AB 1140 L,..AB 1141 L,..AB 1142 L

Upper rated :	speed		Intermediate	e rated sp	eed	Lower rated	speed		Stiding s	leeve travel
Degree of deflection	rev/min Control	Control rod (travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
of control lever	rod travel	rev/min (2	lever	rev/min	mm 4	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1140 1650	15,2-17,8 0 - 1,0	-	-	-	ca.15	100 300	min.9,2 7,6-7,8	250 600 950	0,9-1,1 3,1-3,4
ca.61		1435-1445 1550-1580				350-475			1400	5,3-5,5 8,2
						3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten	stop np. 40°C (104°F) 2	Rotational-speed (20) limitation intermediate speed rav/min	Fuel delivingh idle s	rery characteristics (5e) peed (5b) cm³/1000 strokes	Starting Idle switching	•	Torque- travel	control 5 Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1375	0,7 bar 74,0-75,0 (72,0-77,0)	1435-1445*	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	14,3-14,7 n	=700	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n =

1 375

rev/min decreasing pressure – in bar gauge pressure

MB 5,7 x

-2-

Testoil-ISO 4113

1 3/3			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES6ARS2293	0,7	0	11,3 - 11,4
AB1140L withAB1141L		0,28	10,9 - 11,0
AB1142L			11,1 - 11,2

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 5,7 x 1 2. Edition

supersedes

5.81

company:

Daimler-Benz OM 352 A

engine:

124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

PES 6 A 90 D 410 RS 2293

Port closing at prestroke

mm (from BDC)

RQV 300-1400 AB 1138 L

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,4-7,5	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			
500	10,9+0,1	C. Sp. 4u.5	0,4(0,55)			
	o					

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed		Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	(a) (28)	Degree of deflection of control lever	rev/min	Centrol rod travel	Degree of deflection of control lever.	rev/min	Control rod travel mm (3)	rev/min	(1)
1	2	3		4	5	6	7	8	9	10	11
max.	1500 1650	16,0-19 0 - 1	,4 ,0	-	-	-	ca.15	100 300	min.9,2 7,6-7,8	250 600	0,9-1,1 3,1-3,4
ca.61		1435-144 1550-158					350-475	:		1000 1400	5,5-5,7 8,2
							3 a				

Torque controi travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 56 peed 50	Starting Idle switchir		Torque- travei	Control cod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm³/1000 strokes	rev/min	can³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1375	0,7 bar 74,0-75,0 (72,0-77,0)	1435-1445*	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	10ù	14,3-14,7 mm RW	700	-

Checking values in brackets

* 1 mm less control rod travel then col. 2

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung. C by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach So. Printed in the Federal Republic of Germany Imprime en République Féderale d'Allemagne par Robert Bosch GmbH.

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

1 375

rev/min decreasing pressure - in bar gauge pressure

MB 5,7 x 1

-2-

Testoil-ISO 4113

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS2293	0,7		11,3 - 11,4
with AB 1138 L		0	10,9 - 11,0
		0,28	11,1 - 11,2

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 5,7 v 6. Edition

supersedes

engine.

10.80

company:

Daimler-Benz OM 352 A

124 kW (168 PS)

PES 6 A 90 D 410 RS 2596

RQV 300-1400 AB 1066 DL

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port Closing at pres	troke	(1.95-2.15)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes 4	mm 2	cm ³ /1 00 strokes 3	mm 6
1400	12,4+0,1	7,7-7,8	0,3(0,45)			
300 500 500	8,9-9,1 3,6+0,1 2,3+0,1		0,2(0,4) 0,4(0,55) 0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	speed		Intermediate	Intermediate rated speed			speed	4	Slidina s	Sliding sleeve travel	
Degree of deflection	rev/min Control	Control rod (a	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		0	
of control lever	rod travel mm	rev/min (2a)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm	
1	2	3	4	5	6	7	8	9	10	11	
ca.68	1400 1750	15,2-17,8 0 - 1,0	-	-	-	ca.19	100 300	min.10,5 8,9-9,1	630	0,7-0,9 3,8-3,9	
ca.63		1440-1450 1580-1610				590-660 3a			1020 1400	5,3-5,5 7,7	

Torque controi travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		limitation intermediate speed	Fuel delic high idle s	rery characteristics (5a)	Starting Idle switchin		Torque- travei	Control roo
rev/min	cm ³ /1000 strokes .	rev/min 44	rev/min	cm ³ /1000 strokes	rev/min 6	cm ³ /1000 strokes	r g v/min 8	travel mm
LDA 1400	0,7 bar 77,0-78,0 (75,0-80,0)	1440-1450*	LDA 500 LDA 500	0,7 bar 70,5-72,5 (68,5-74,5) 0 bar 56,0-58,0 (54,0-60,0)	100 Set	72,25-82,25 bei RW = 15,8-16,2mm stop at 3-3,5 travel	1400 1200 1000	12.4+0,1 12,5+0,3 13,1+0,2 ontrol

Checking values in brackets

* 1 mm less control rod travel than col. 2



D. Adjustment Test for Manifold Pressure Compensator

Testatn =

SOC

rev/min decreasing pressure - in bar gauge pressure

MB 5,7 V

-2-

Testoil-ISO 4113

500	increasing		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 2596 with	0,7		13,6 - 13,7
AB 1055 UL		0,35	13,2 - 13,3
	,	0,2	12,5 - 12,7
		0	12,3 - 12,4
		·	

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MB 5,7 v 2

5. Edition

supersedes

5.81

company:

Daimler-Benz OM 352 A 126 kW (171 PS)

PES 6 A 90 D 410 RS 2596

RQV 300-1400 AB 1066-1 DL

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,95-2,15

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strakes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	12,4+0,1	7,8-7,9	0,3(0,45)			
300	8,9-9,1	0,9-1,5	0,2(0,4)			
500	13,6+0,1	C. Sp. 4 - 5	0,4(0,55)			
500 ့	12,3+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s				Intermediate	rated spe	_	Lower rated	speed	1	Sliding s	leeve travel
deflection of control	Control rod travel		(1) (2s)	Degree of deflection of control	and denie	Control rod travel	Degree of deflection of control	an desir	Control rod travel		0
lever 1	mm 2	rev/min 3		lever 4		mm (4) 6	lever 7	rev/min 8	mm (3) 9	rev/min 10	mm 11
max.	1500 1750	15,2-17, 0 - 1	,8	-	-	-	ca.19	100 300	min.10,5 8,9-9,1		1,2 2,5-2,7 8,6
ca.62		1440-145 1580-161					590-660			, , , ,	0,0
							<u>3a</u>				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-red Test oil ten		Rotational-speed 2b timitation intermediate spead	Fuel deliv	rery characteristics (56)	Starting Idle switchin		Torque- travei	Control rod
rev/min	cm ³ /1000 strokes .	rev/min 49	rev/min 4	cm ³ /1000 strokes	rev/min 6	cm³/1000 strokes	rev/min 8	travel mm
LDA 1400	0,7 bar 78,0-79,0 (76,0-81,0)	1440-1450*	LDA 500 LDA 500	0,7 bar 72,5-74,5 (70,5-76,5) 0 bar 58,0-60,0 (56,0-62,0)	100	72,25-82,25 15,8-16,2 RW 220 (80-240)	1400 1200 1000 500	12,4 12,5 13,1 13,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure increasing

MB 5,7 v 2

-2-

4113	
-180	
Testoil	

	· · · · · · · · · · · · · · · · · · ·		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6ARS 2596 withAB1066-1 DL	0,7	0 0,35 0,2	13,6 - 13,7 12,3 - 12,4 13,2 - 13,3 12,5 - 12,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 5,7 v 8 2. Edition

supersedes

company:

4.81 Daimler-Benz engine: OM 352 A

124 kW (169 PS)

PES 6 A 90 D 410 RS 2596

ROV 300-1400 AB 1151 L

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC) Port closing at prestroke (1.95-2.15)

Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,5+0,1	7,7-7,8	0,3(0,45)			
300 600 450	7,9-8,1 11,5+0,1 10,2+0,1	*	0,2(0,4) 0,4(0,55) 0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	(18) (28)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	1) mm 11
max.	1400 1700	15,2-17 0 - 1	,8 ,0	-	-	-	ca.24	100 300	min.9,5 7,9-8,1	250 600	0,9-1,1 3,1-3,4
ca. 61		1440-14 1560-15					350-500 3a			950 1400	5,2-5,5 8,2

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-spued 20 (imitation intermediate speed	Fuel deliv	very characteristics (5a)	Starting fuel delivery 6 idle awitching point		Torque-control (travel	
rev/min	cm ³ /1000 strokes	rev/min 49	rev/min	cm ³ /1900 strokes	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
LDA 1400	0,7 bar 77,0-78,0 (75,0-80,0)	1440-1450*	LDA 600 LDA 450	0,7 bar 63,0-65,0 (61,0-67,0) 0 bar 42,0-44,0 (40,0-46,0)	100	- 72,25-82,25 at 14,8 - 15,2 mm RW	•	<u>-</u>

Checking values in brackets

1 mm less control rod travel than col. 2

Test at n =

rev/min decreasing pressure - in bar gauge pressure

MB 5,7 v 8

Testoil-ISO 4113

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 ARS 2596 withAB 1151 L	0,7		11,5 - 11,6
		0	10,2 - 10,3
		0,29	11,1 - 11,2
		0,18	10,6 - 10,8

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 MB 5,7 q 2

6. Edition

PES 6 A 90 D 410 RS 2293

EP/RSV 350-1300 AOB7& DL EP/RSV 350-1400 AOB788DL

supersedes 11.79
Daimler-Benz

Dimension H = 22,5 mm

ompany OM 352 (A)
engine (150 PS - 1)
(168 PS - 2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25 Part closing at prestroke(2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm\$100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,0+0,1	7,0-7,1	0,3(0,45)	11,3+0,1	7,5-7,7	n = 1400
350 800/500	6,9-7,1 -	0,7-1,1 C 4-5	0,2(0,4) 0,4(0,55)	6,7-6,9	0,7-1,1	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

783 DL (1)

1 Uppe	r rated speed		Intermed	liate rated	speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm
,	2	3	4	5	6	7	18	9	10	11
ca.59		11,6-11,1				ca.23	350	7,0	1300	+0,1
				without auxiliary spring			I .	min.19	1000	11,0 11,2
(2a)		a.11,0	with a	auxili	arv		350 410-470 550	6,9-7,1 = 2,0 0 - 1	500	11,6
		, , , , ,	sprin		- . y					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	Specific Spe		Table 1 Table 1 Table 2 Table		Starting t	uel delivery 5	4a Idle stop	
rev/min	emp. 40°C (104°F) cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ^{\$} /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min	Control rod travel mm 9
LDA 1300	0,7 bar 70,0-71,0 (68,0-73,0)	1340-1350*	LDA 800 LDA 500	0,7 bar 65,5-68,5 (63,5-70,5) 0 bar 54,0-56,0 (52,0-58,0)	100	13,7-14,3		0,5-1,0 e stop

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

10.81

estoil-ISO 4113

B. Governor Settings

1 Uppe	r rated speed		Intermediate rated speed			(4)	Lower	rated speed	rated speed 3 To	
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm
67-70	1400 1440- 1475-	11,3-11,4 1450=10,3 1505= 4,0	withou spring	ut aux	iliar	19 -21	350 200	6,8 mind.19	1400	+ 0,1
23	1145	ca 10.3]	auxili			350 540-600 700	6,7-6,9 = 2,0 0 - 1	650 500	11,3 11,5

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-ioad stop		speed limitat. Characteristics			fuel delivery 5		
rev/min	cm ³ /1000 strokes	Mote: changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7		Control rod travel mm 9
LDA 1400	0,7 bar 74,0 - 75,0 (72,0 - 77,0)	1440-1450*	LDA 500	0,7 bar 62,0 - 64,0 (60,0 - 66,0)		13,7-14,3 mm RW		0,5-1,0 re stop
			LDA 500	0 bar 54,0 - 56,0 (52,0 - 58,0)			20.0	,

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2293 with 783 DL	0,39	0,29	0,1 - 0,2 0,5 - 0,7
2293 with 788 DL	0	0,285 0,500	10,8 - 10,9 11,1 - 11,2 11,5 - 11,6
Switching point (hydr. measurement	0,40 - 0,50)	0,15 - 0,25	10 - 12 mm RW 19 - 21 mm RW

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 EIC 3,9 b
4. Edition

En

PES 4 A 80 D 420 RS 1277 EP/RSV 300-1050 A 1 B 2052 DR

supersedes 4.79 company Fiche

1 - 2 - 4 - 3 je $90^{\circ} \pm 0,50$ ($\pm 0,75$)

engine EDK 4 T, EDK 4-12 63 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 4113

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ⁹ /100 strokes 3	Spring pre-tensioning storque-control valve) mm
1030	11.0	6,7 - 6,8	0,2(0,35)			
300 750/500	+ 0,1 7,9-8,1 	1,7 - 2,3 C, Sp. 4-5	0,2(0,3) 0,3(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	intermed	liate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	rev/min	rque control Control rod travel mm 11 + 0,1	
loose	800 X =	800 0,3-1,0					ca.24	300 100 300	7,5 min.19 7,9-8,1	1030 `810	11,0 11,9
ca. 55	10,0 4,0 1300	1070-1080 1095-1125 0,3 - 1,7					515-575 650	= 2,0 0 - 1	500	12,8	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ill-load stop	Rotational- speed limitat		iel delivery iaracteristics	Starting I	uel delivery 5	4a Idle stop	
Test oil to rev/min 1	emp. 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm\$1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1030	0,8 bar 67,5-68,5 (66,0-70,0)	1070-1080*	DA 750	0,8 bar 84,5-87,5 83,0-89,0)	00	99,5-109,5	300	8,0
			DA 500	0 bar 55,5-57,5 54,0-59,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

EIC 3,9 b

-2-

4113	
I-ISO	
Testoi	The state of the last of the l
	_

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
1277 with 2052 D	0.00		42.7.42.0
1277 WTTH 2002 D	0,80	0,50	12,7 - 12,8 12,1 - 12,2
		0,23	11,3 - 11,5
		0	10,7 - 10,8

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 KHD 5,1 g 1

1. Edition

En

PES 6 A 85 D 410/3 RS 2611

RSV 325-1200 AOB 2148L

supersedes

KHD

company engine

F 6 L 913 tractor DX 120 84 kW (114 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,5-2,6 (2,45-2,65)

mm (frem BDC)

	Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
Ŋ	1200	11,3+0,1	6,9 - 7,0	0,3(0,45)	2.		
1 +	325 800	8,4-8,6 12,0+0,1	0,9 - 1,5 C,Sp.4 u. 5	0,2(0,4) 0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed Control rod travel mm			ate rated	speed	Control- lever deflection in degrees 7		rated speed Control red travel mm	9	rque control Control rod travel mm	
loose	800	0,3-1,0	-	_	-	ca.30	325	8,5	1200	11,3-11,4	
	x =	4,0						min.19,0 8,4-8,6		11,6-11,9 12,0-12,1	
ca.56	10,3 4,0	1240-1250 1305-1335	ľ				490-550		300	12,0-12,1	
28	1425	0,3 - 1,7		tidle	-spee	d auxili	ary spri	ng at 2 m	m con	rol-rod tr	avel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

W	ill-load stop	6 Rotational- speed limitat	el delivery paracteristics	Starting fuel delivery 5 4a Idle stop				
Test oil to rev/min 1	emp. 40°C (104°F) cm ² /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ² /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min	Control root travel mm
1200	69,5-70,5 (67,5-72,5)	1240-1250*	800	63,5-65,5 (61,5-67,5)	100	19,0-21,0	325	8,5

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. c. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 2,4 d 4. Edition

En

PES 4 M 55 C 320 RS 60

EP/MN 60 M 46 DR (1) EP/MN 60 M 42 DR (2) EP/MN 60 M 51 DR (3) EP/MN 60 M 43 DR (4) supersedes 11.76 company Daimle

engine

Daimler-Benz OM 616 (1/3-Pkw)

(2/4-Transporter)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 mm (from BDC)

(1.65-1.85)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	5	6	7
2250	13,7	3,9-4,1	0,2(0,25)			
	(+0,1)			6.		
250	9,0-9,2	0,4-1,0	0,15(0,2)			
1600/1000	Sect. C	col. 4-6	0,25(0,3)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

	Leakage		Control- limitatio breakay		Control			Auxiliary spring auxiliary cam**		Torque control	
Torque control travel		Time at least		Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel	
mm .	mm water col.	s	mmw.c.	mm	mm w.c	mm	mmw.c	mra	mmw.c.	mm	
1	2	3	4	5	6	7	8	9	10	11	
1,1+0,1	500-480	10	520	13,7		9,2-13,7 6,2-10,7		9,2-10,2 7,7- 8,7	250	14,8-14,9 14,4-14,8	
= rotational sp	vel test (cols. 4– eed 500 rev/mir	n.	550-		675	3,2- 7,2				13,9-14,3 13,7-13,8	
	way (cols. 4-5) i at (8 8-9 - C 7-										

C. Settings for Fuel Injection Pump with Fitted Governor

	stop screw mp 40°C (104°	F)	Fuel deln	ery character	istics	idle (stop		Control road travel from full-load to
rev/min	Vacuum mm wat col 2	cm ³ /1 000 strokes 3	rev/min 4	Vacuum mm wat. col 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat col	mm cm ³ /1000 strokes 8
2250 520		39,7-40,7 (38,7-41,7)	1600		38,9-40,5 (37,9-41,5)	500	600	3,2- 4,2
			1000	140	38,2-39,7 (37,2-40,7)	250	ca.880	4,5-10,5

Checking values in brackets

8.77

BOSCH

Notes:

- 1. Sliding-sleeve idle travel = 6.75 + 0.25 mm
- 2. Advance angle in idle full load range = 34 42°
- 3. ** 3 At this engine speed, exceed control-rod travel by 0.4+0.1 mm; idle delivery must not be affected!
- 4. ***- "12.4 mm" is the full-load control-rod travel set in Section A, 1-3.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 2,4 b 4. Edition

PES 4 M 55 C 320 RS 58

EP/MN 60 M 41 DR

supersedes

10.75

company

Daimler-Benz

engine

OM 616 - USA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 (1,65-1,85)

mm (from BDC)

at max. RW

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 5	Fuel delivery cm ³ /100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
2250	13,5	3,8-4,0	,2(0,25)			
250 1600/1000	(+0,1) 9,1 (±0,1) Sect. C	0,4-1,0 col. 4-6),15(0,2)),25(0,3)	į.		

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

	Leakage		Control	rod travel			Auxiliary auxiliary		Torque co	ontrol
Torque control travel		Time at least		Control rod travel	1	travel		Control rod travel mm	Vacuum mm.w.c.	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
0,8+0,1	500-480	10	520	13,5	580 675	9,0-13,5 3,2- 6,8	675 850	8,9-10,0 7,5- 8,6	150 300	14,2-14,3 14,0-14,3
control rod trav	val tass (cols 4-	11)	550 -	- 580*		, , , , , ,		.,,.	375 520	13,6-13,9 13,5-13,6
= rotational sp adjust breakay	eed 500 rev/mir vay (cols. 4-5) t nt (8 8-9 - C 7-	n. Dy mean:								

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F)			Fuel delivery characteristics			dle (stop)** idle (imbalance)		Control road travel from full-load to 1 idle
rev/min	Vacuum mm wat. col	cm ³ /1000 strokes	rev/min 4	Vacuum mm wat col 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat col	mm cm ³ /1000 strokes 8
2250	520	38,7-39,7 (37,7-40,7)	1600	370	38,2-39,7 (37,2-40,7)	500	600	3,2- 4,2
			1000	150	37,7-39,7 (36,7-40,7)	250	ca.620	4,5-10,5

Checking values in brackets

40

VDT-WPP 001/4 MB 2,4 e 2. Edition

Er

PES 4 M 55 C 320 RS 60

EP/MN 60 M 47 D

supersedes

company

12.75 Daimler-Benz

engine OM 616 (Schweden)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 mm (from BDC)

(1,65-1,85)

Rotational speed	travel	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 5	Fuel delivery cm 1/100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
2250	13,4(+0,1)	3,8-4,0	0,2(0,25)			
250	9,1(±0 ₃ 1)	0,4-1,0	ù,15(0,2)			
1600/1000	Sect. C	col. 4-6	0,25(0,3)			

B. Governor Settings

			Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
Torque control travel	Vacuum pressure drop			Control rod travel		Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel
mm	mm water col.	s	mmw.c.	mm	mm w.c.	mm	mmwc	mm	mm w.c.	ww
1	2	3	4	5	6	7	8	9	10	11
1,1+0,1	500-480	10	520	13,4		8,5-13,5 5,8-10,5	675 850	9,2-10,0 7,5- 8,6	150 250	4,5-14,7 4,2-14,6
			550	- 580*	675	2,7- 6,8	000	,,0 0,0	350 520	3,7-14,1 3,4-13,5
control rod travel test (cols. 4-11) = rotational speed 500 rev/min. adjust breakaway (cols. 4-5) by means of shims* cam adjustment (B 8-9 - C 7-8) by means of shims**										

C. Settings for Fuel Injection Pump with Fitted Governor

	stop screw mp 40°C (104°	F)	Fuel deliv	very character	stics	idle (stop)** idle (imbalance)		Control road travel from full-load to
rev/min	Vacuum mm wat col	cm ³ /1 000 strokes	rev/min	Vacuum mm wat col	cm ³ /1000 strokes 6	rev/min 7	rev/min Mm wat col cm ^{3/1} 7 8	
2250	520	38,7-39,7 (37,7-40,7)	1600	360	37,9-39,5 (36,9-40,5)	500	600	3,2- 4,2
			1000	140	37,2-38,7 (36,2-39,7)	250	ca.850	4,5-10,5

Checking values in brackets

BOSCH